10/520253

Fig. 1

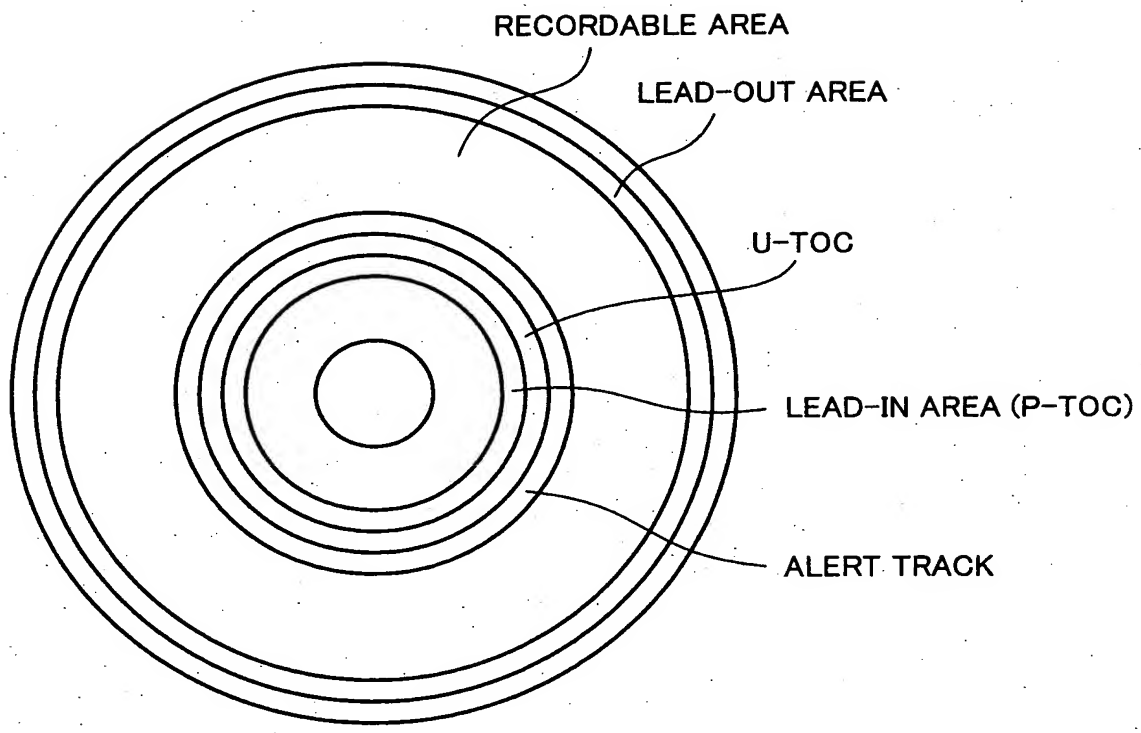


Fig. 2

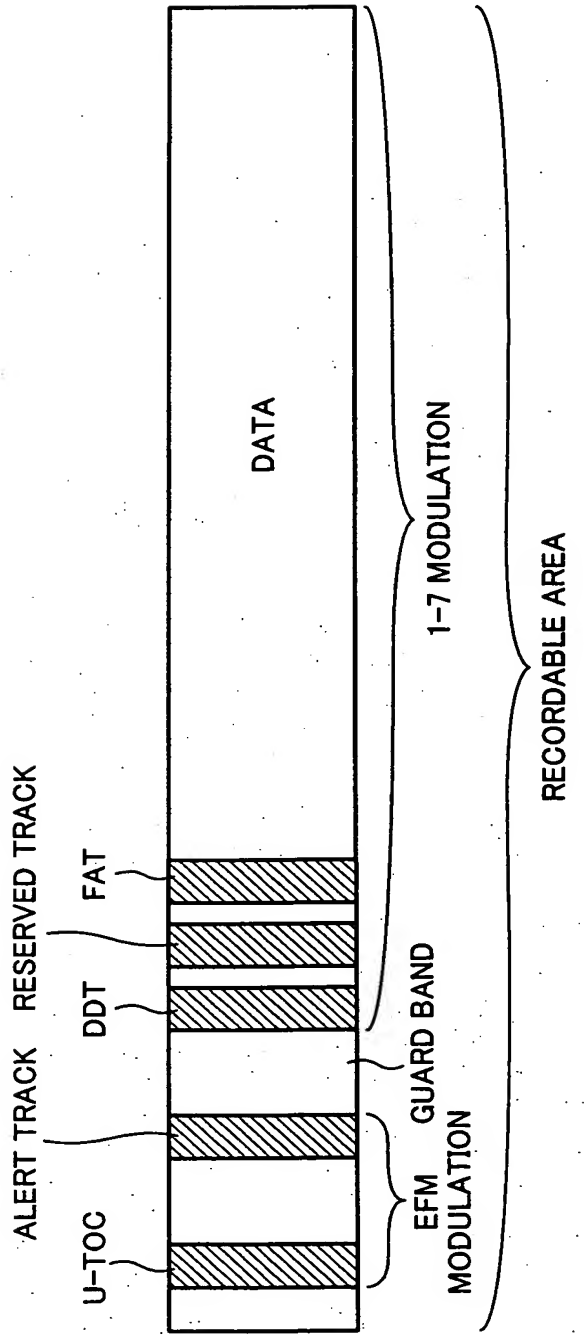

DATA
FAT
RESERVED TRACK
DDT
GUARD BAND
ALERT TRACK
U-TOC
1-7 MODULATION
EFM MODULATION
RECORDABLE AREA

Fig. 3A

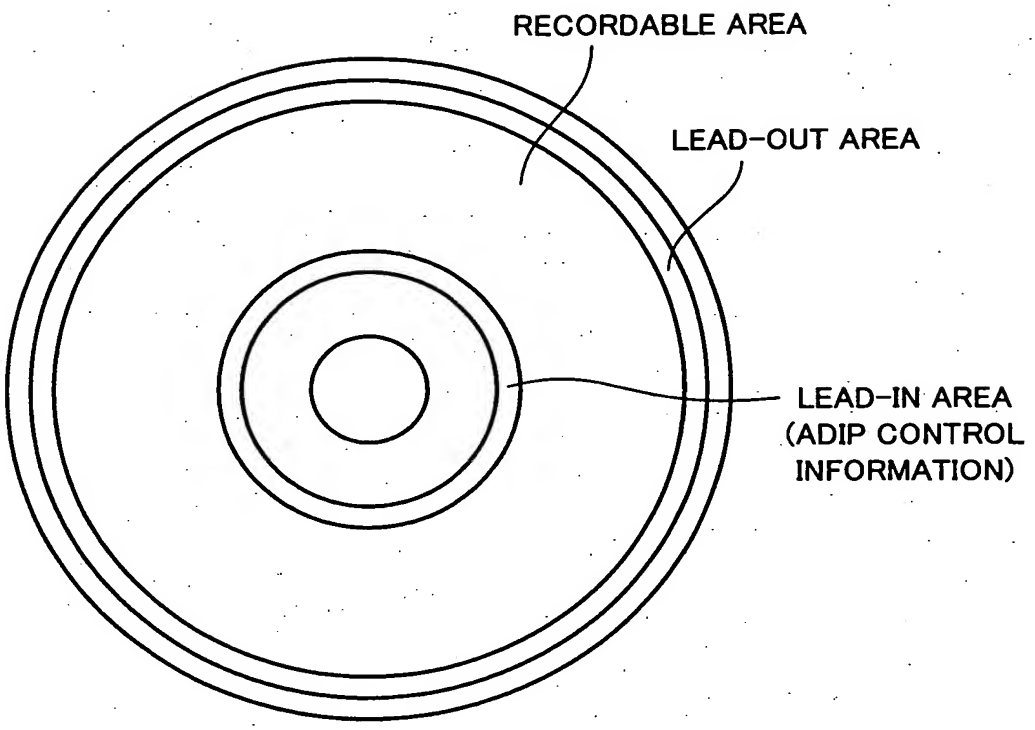

RECORDABLE AREA
LEAD-OUT AREA
LEAD-IN AREA
(ADIP CONTROL
INFORMATION)

Fig. 3B

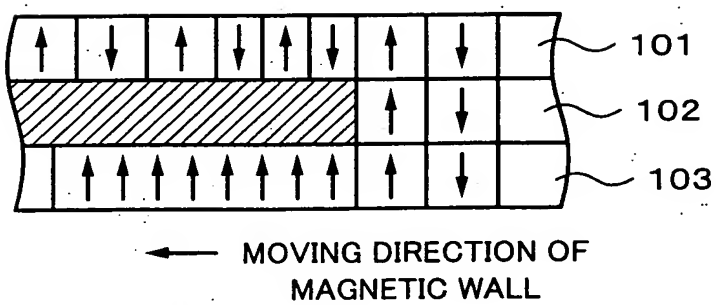

101
102
103
MOVING DIRECTION OF
MAGNETIC WALL

Fig. 4

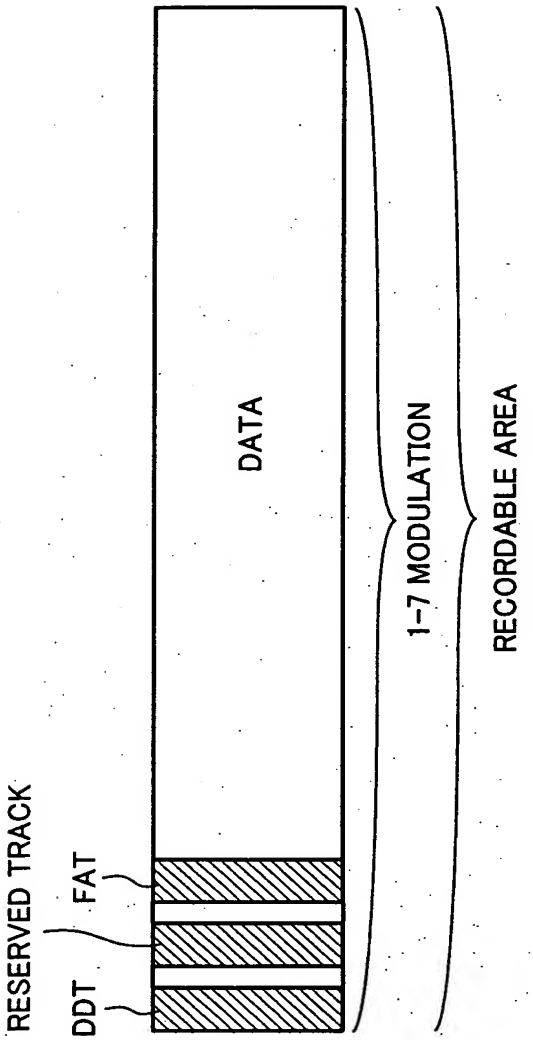

RESERVED TRACK
FAT
DDT
DATA
1-7 MODULATION
RECORDABLE AREA

Fig. 5

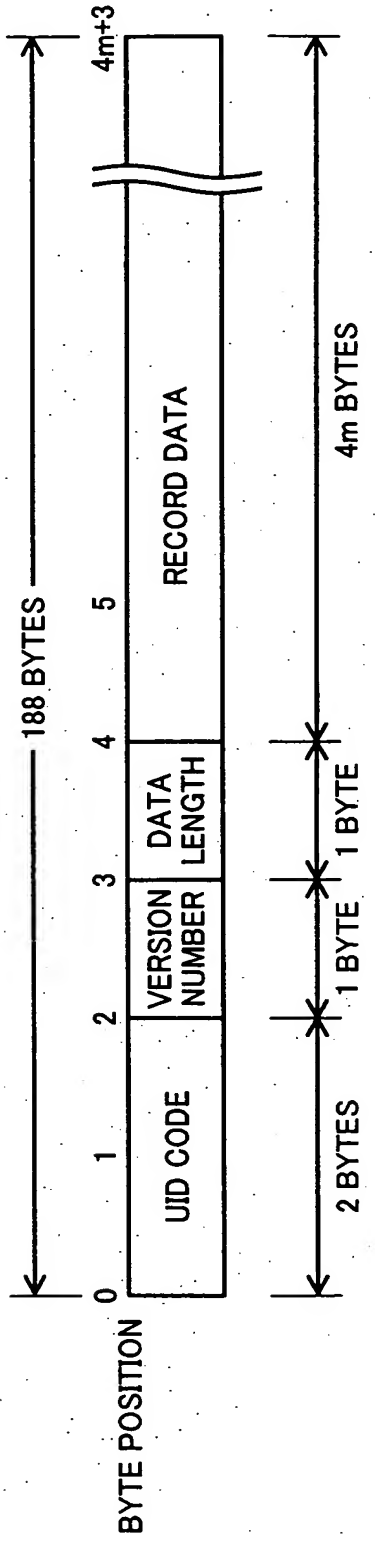

BYTE POSITION
0
1
2
3
4
5
4m+3
UID CODE
VERSION NUMBER
DATA LENGTH
RECORD DATA
188 BYTES
2 BYTES
1 BYTE
1 BYTE
4m BYTES

Fig. 6

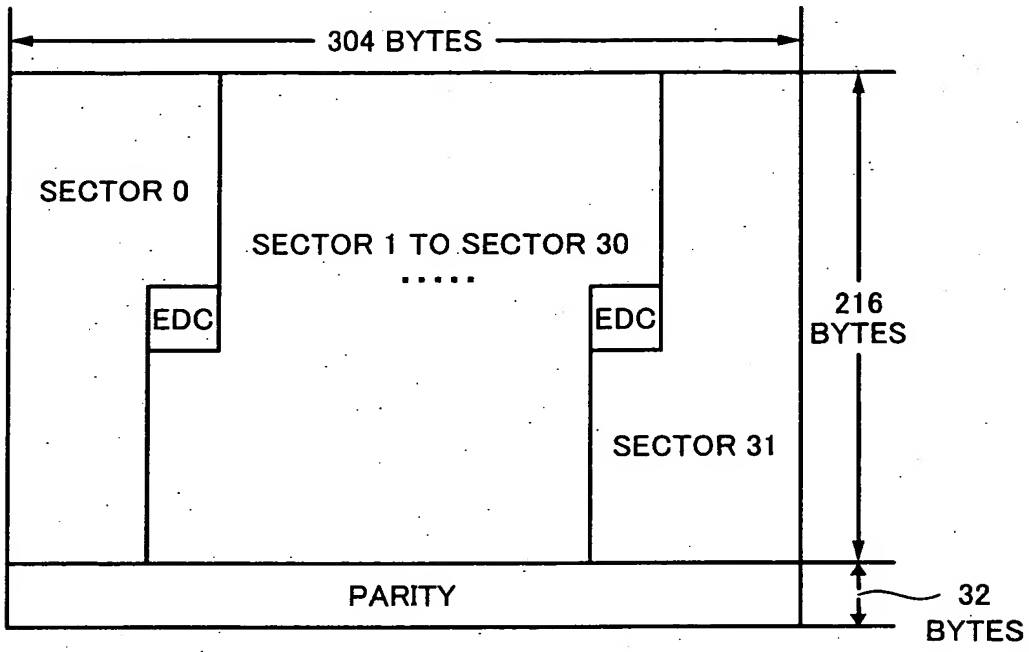

304 BYTES
SECTOR 0
SECTOR 1 TO SECTOR 30
EDC
EDC
SECTOR 31
216
BYTES
PARITY
32
BYTES

Fig. 7

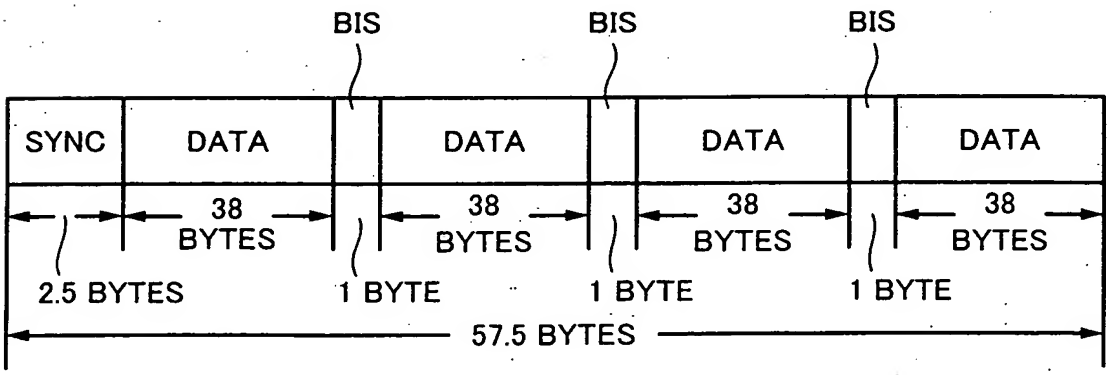

BIS
BIS
BIS
SYNC
DATA
DATA
DATA
DATA
38
BYTES
38
BYTES
38
BYTES
38
BYTES
2.5 BYTES
1 BYTE
1 BYTE
1 BYTE
57.5 BYTES

Fig. 8

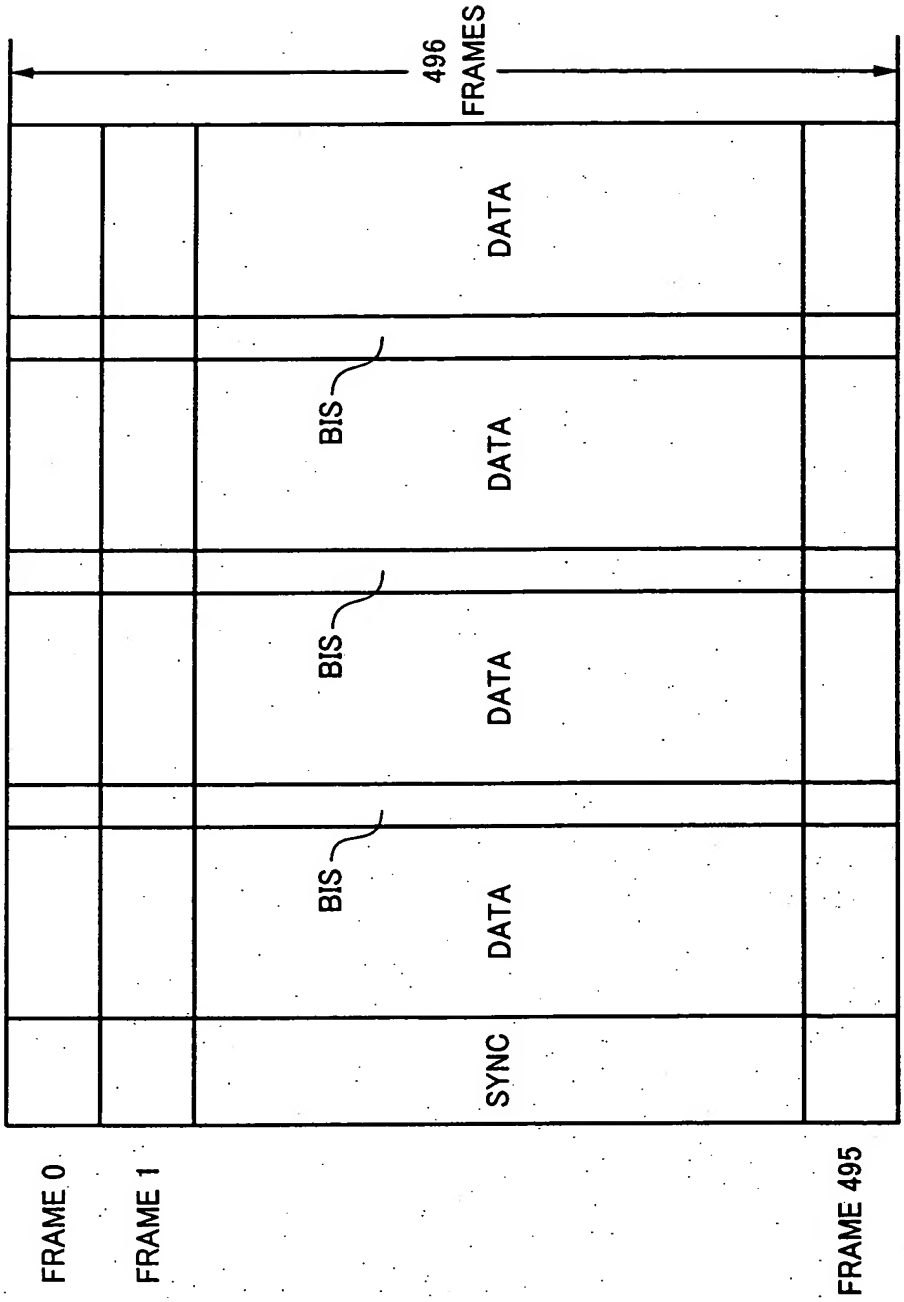

496 FRAMES
DATA
BIS
DATA
BIS
DATA
BIS
DATA
SYNC
FRAME 0
FRAME 1
FRAME 495

Fig. 9

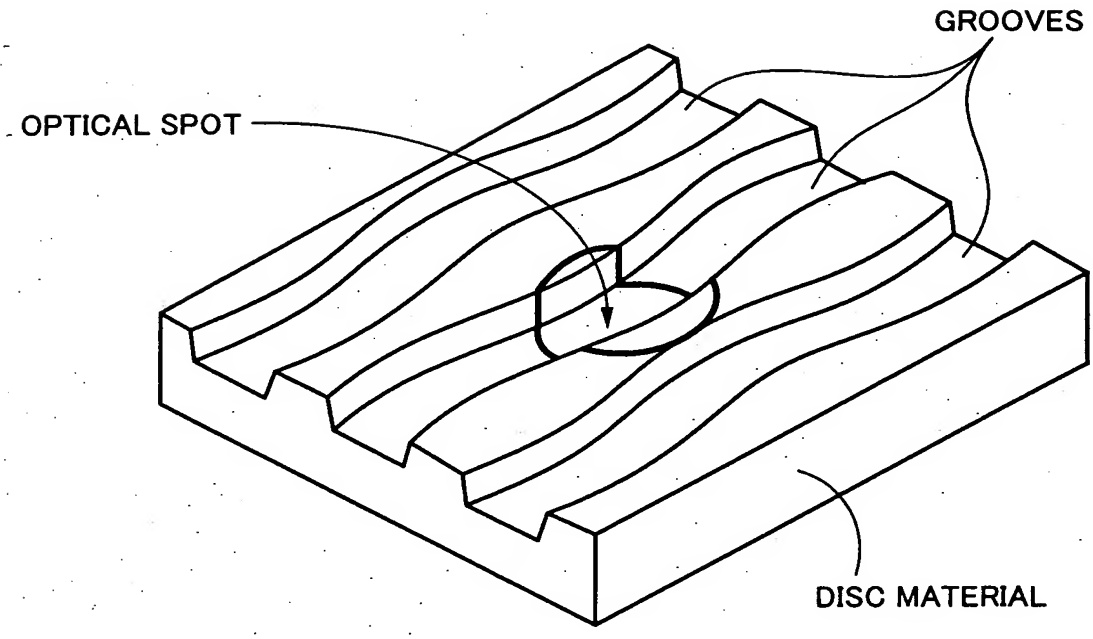


Fig. 10

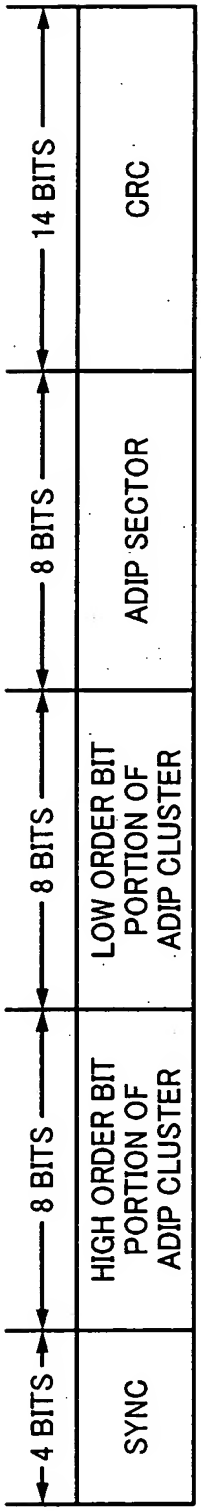

4 BITS
8 BITS
8 BITS
8 BITS
14 BITS
SYNC
HIGH ORDER BIT PORTION OF ADIP CLUSTER
LOW ORDER BIT PORTION OF ADIP CLUSTER
ADIP SECTOR
CRC

Fig. 11

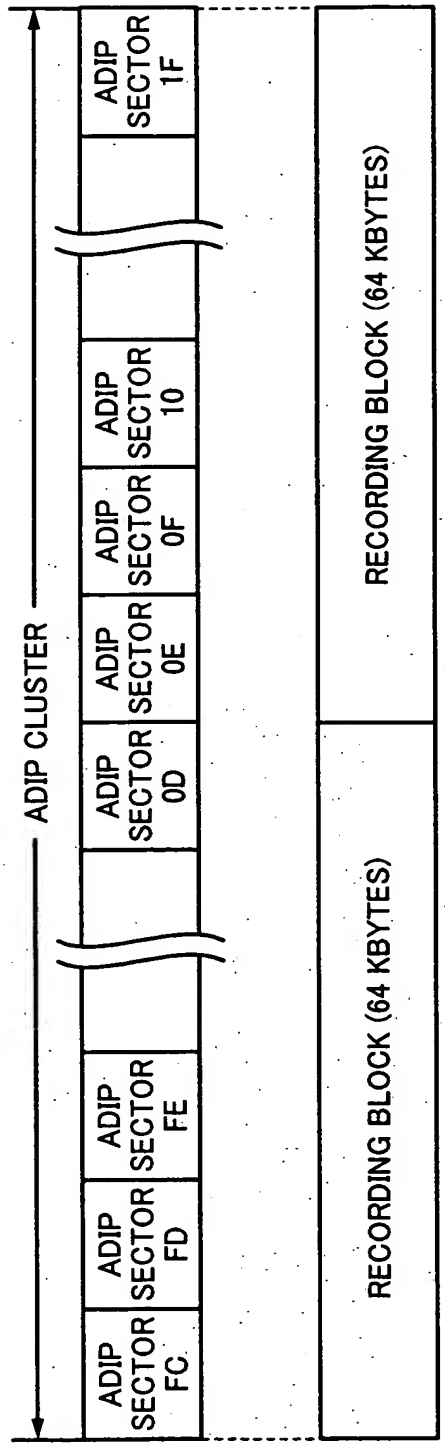

ADIP CLUSTER
ADIP SECTOR FC
ADIP SECTOR FD
ADIP SECTOR FE
ADIP SECTOR 0D
ADIP SECTOR 0E
ADIP SECTOR 0F
ADIP SECTOR 10
ADIP SECTOR 1F
RECORDING BLOCK (64 KBYTES)
RECORDING BLOCK (64 KBYTES)

Fig. 12

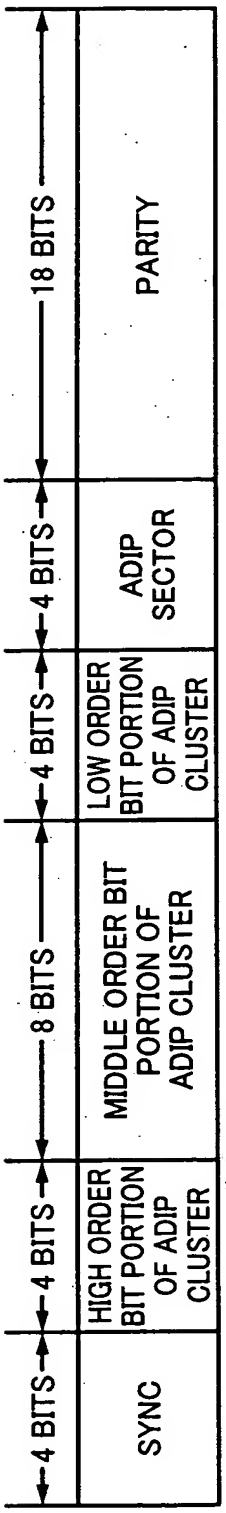

4 BITS
SYNC
4 BITS
HIGH ORDER BIT PORTION OF ADIP CLUSTER
8 BITS
MIDDLE ORDER BIT PORTION OF ADIP CLUSTER
4 BITS
LOW ORDER BIT PORTION OF ADIP CLUSTER
4 BITS
ADIP SECTOR
18 BITS
PARITY

Fig. 13

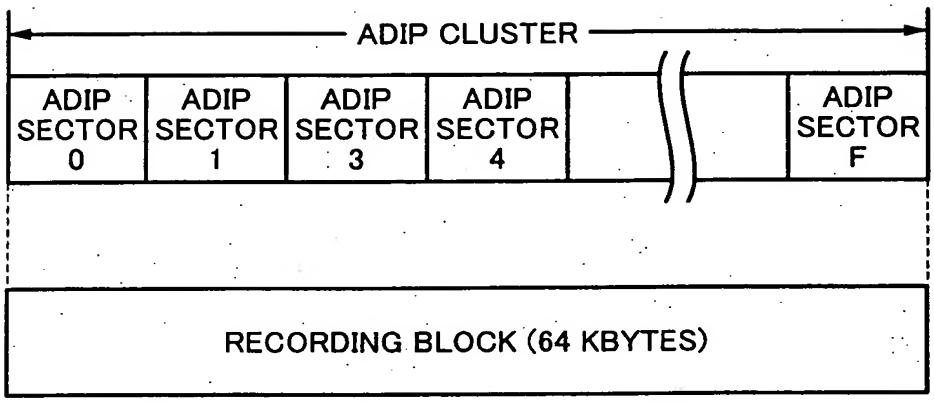

ADIP CLUSTER
ADIP SECTOR 0
ADIP SECTOR 1
ADIP SECTOR 3
ADIP SECTOR 4
ADIP SECTOR F
RECORDING BLOCK (64 KBYTES)

Fig. 14

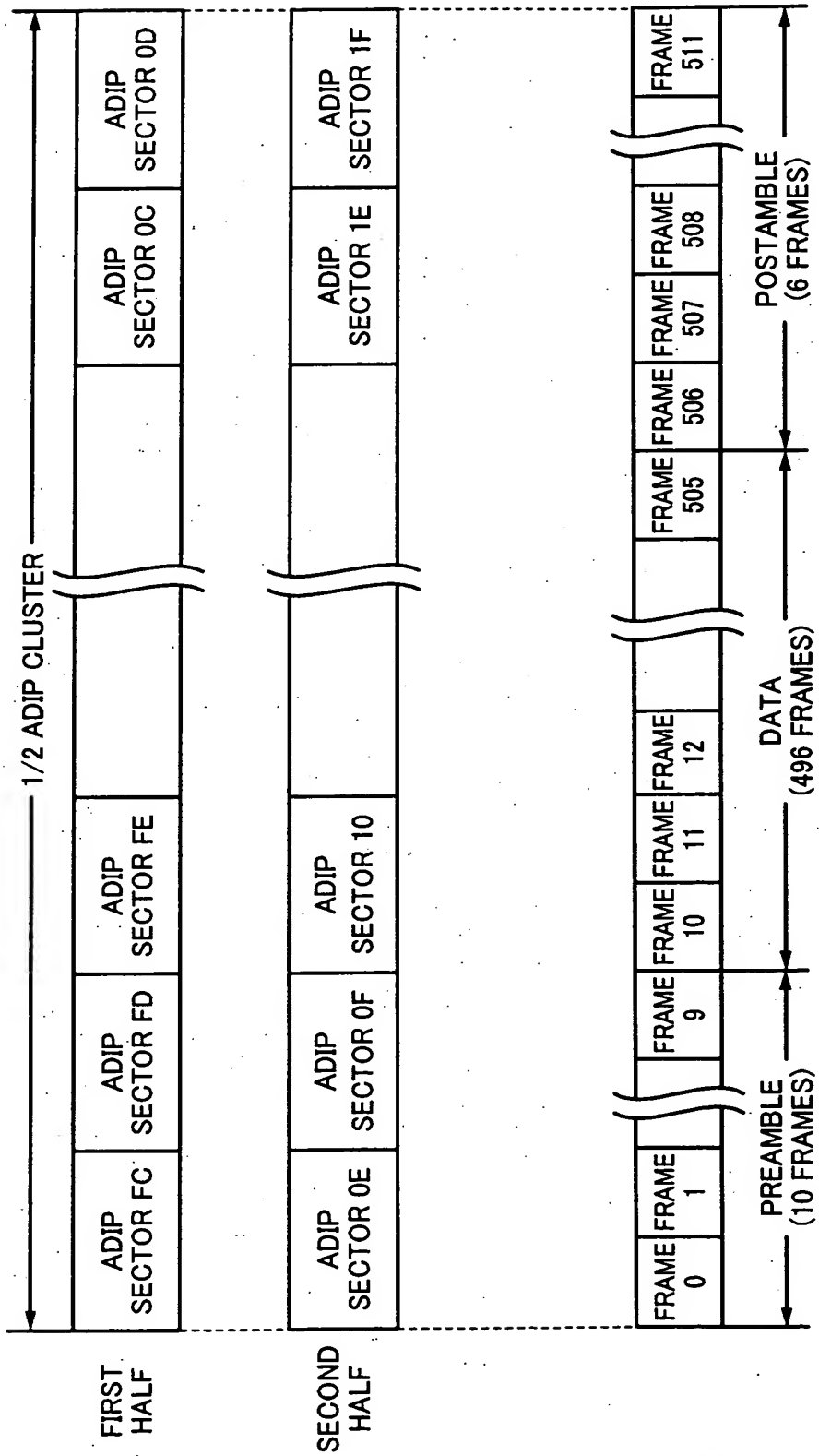

1/2 ADIP CLUSTER
FIRST HALF
SECOND HALF
ADIP SECTOR FC
ADIP SECTOR FD
ADIP SECTOR FE
ADIP SECTOR 0C
ADIP SECTOR 0D
ADIP SECTOR 0E
ADIP SECTOR 0F
ADIP SECTOR 10
ADIP SECTOR 1E
ADIP SECTOR 1F
FRAME 0
FRAME 1
FRAME 9
FRAME 10
FRAME 11
FRAME 12
FRAME 505
FRAME 506
FRAME 507
FRAME 508
FRAME 511
PREAMBLE (10 FRAMES)
DATA (496 FRAMES)
POSTAMBLE (6 FRAMES)

Fig. 15

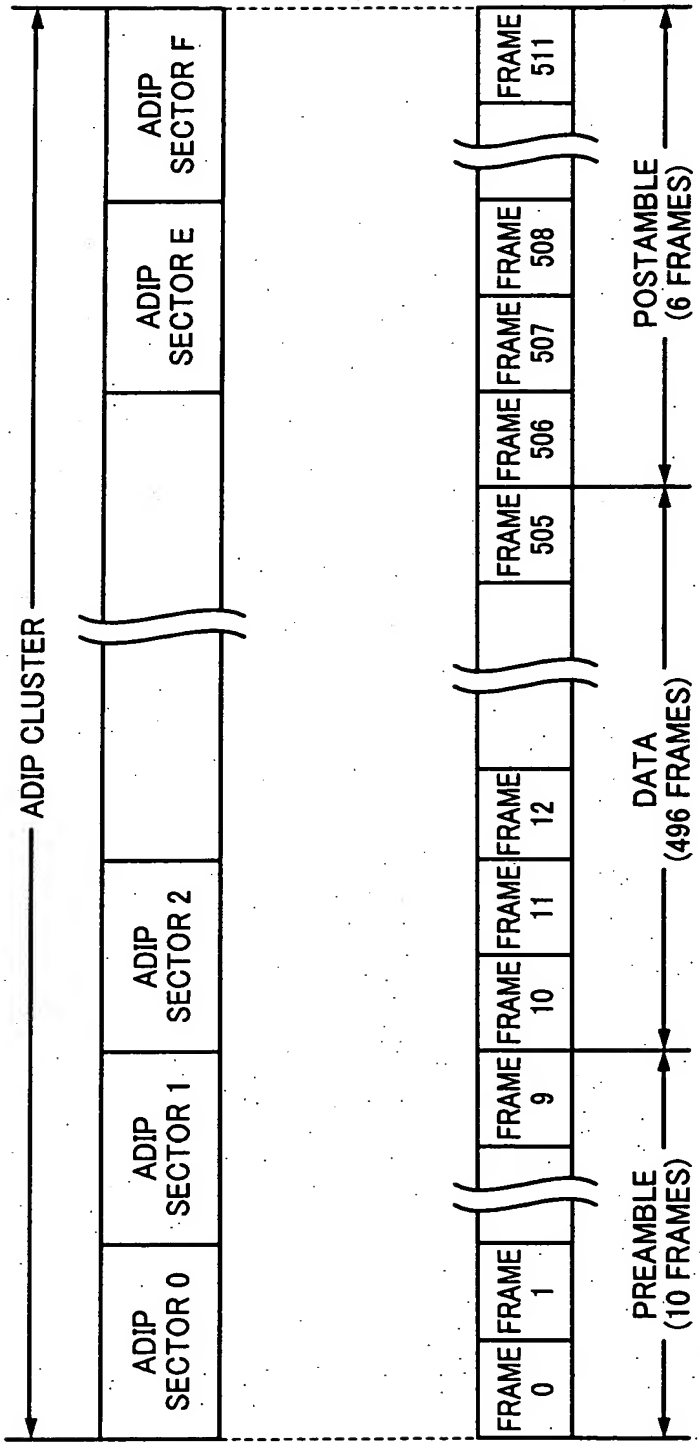

ADIP CLUSTER
ADIP SECTOR 0
ADIP SECTOR 1
ADIP SECTOR 2
ADIP SECTOR E
ADIP SECTOR F
FRAME 0
FRAME 1
FRAME 9
FRAME 10
FRAME 11
FRAME 12
FRAME 505
FRAME 506
FRAME 507
FRAME 508
FRAME 511
PREAMBLE (10 FRAMES)
DATA (496 FRAMES)
POSTAMBLE (6 FRAMES)

Fig. 16

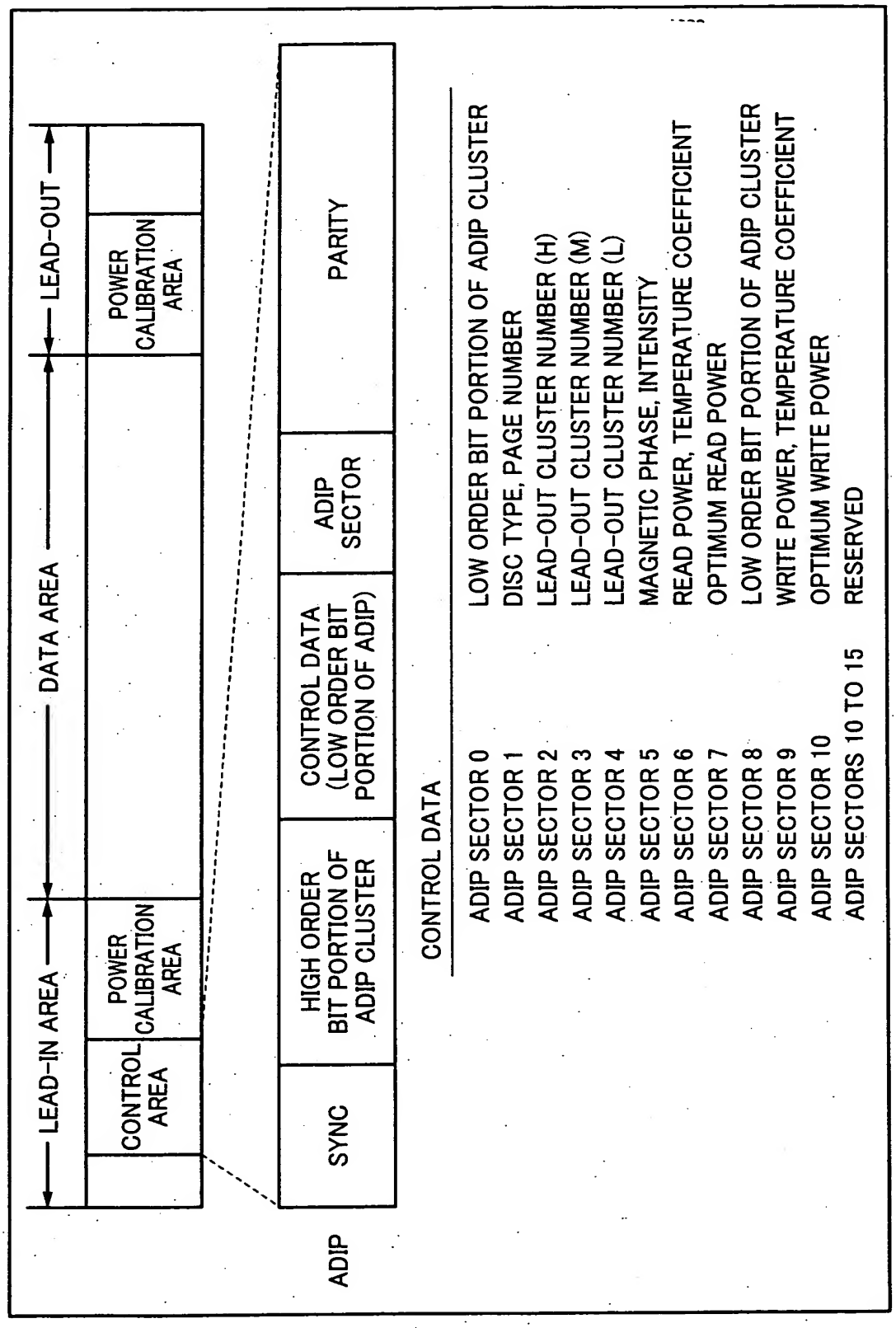

LEAD-IN AREA
DATA AREA
LEAD-OUT
CONTROL AREA
POWER CALIBRATION AREA
POWER CALIBRATION AREA
ADIP
SYNC
HIGH ORDER BIT PORTION OF ADIP CLUSTER
CONTROL DATA (LOW ORDER BIT PORTION OF ADIP)
ADIP SECTOR
PARITY
CONTROL DATA
ADIP SECTOR 0 LOW ORDER BIT PORTION OF ADIP CLUSTER
ADIP SECTOR 1 DISC TYPE, PAGE NUMBER
ADIP SECTOR 2 LEAD-OUT CLUSTER NUMBER (H)
ADIP SECTOR 3 LEAD-OUT CLUSTER NUMBER (M)
ADIP SECTOR 4 LEAD-OUT CLUSTER NUMBER (L)
ADIP SECTOR 5 MAGNETIC PHASE, INTENSITY
ADIP SECTOR 6 READ POWER, TEMPERATURE COEFFICIENT
ADIP SECTOR 7 OPTIMUM READ POWER
ADIP SECTOR 8 LOW ORDER BIT PORTION OF ADIP CLUSTER
ADIP SECTOR 9 WRITE POWER, TEMPERATURE COEFFICIENT
ADIP SECTOR 10 OPTIMUM WRITE POWER
ADIP SECTORS 10 TO 15 RESERVED

Fig. 17

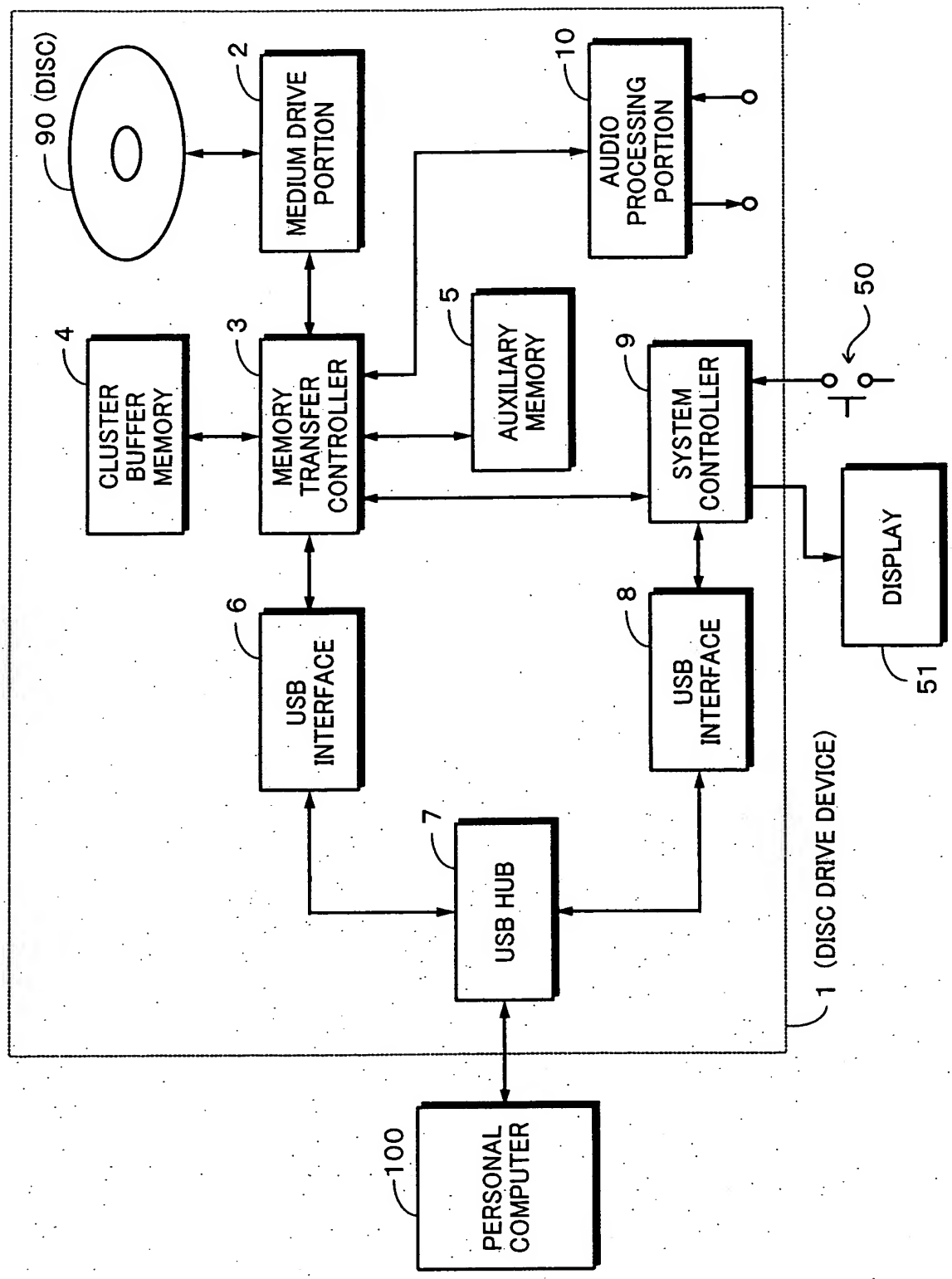

90 (DISC)
2
MEDIUM DRIVE PORTION
10
AUDIO PROCESSING PORTION
50
4
CLUSTER BUFFER MEMORY
3
MEMORY TRANSFER CONTROLLER
5
AUXILIARY MEMORY
9
SYSTEM CONTROLLER
DISPLAY
51
6
USB INTERFACE
8
USB INTERFACE
7
USB HUB
1 (DISC DRIVE DEVICE)
100
PERSONAL COMPUTER

Fig. 18

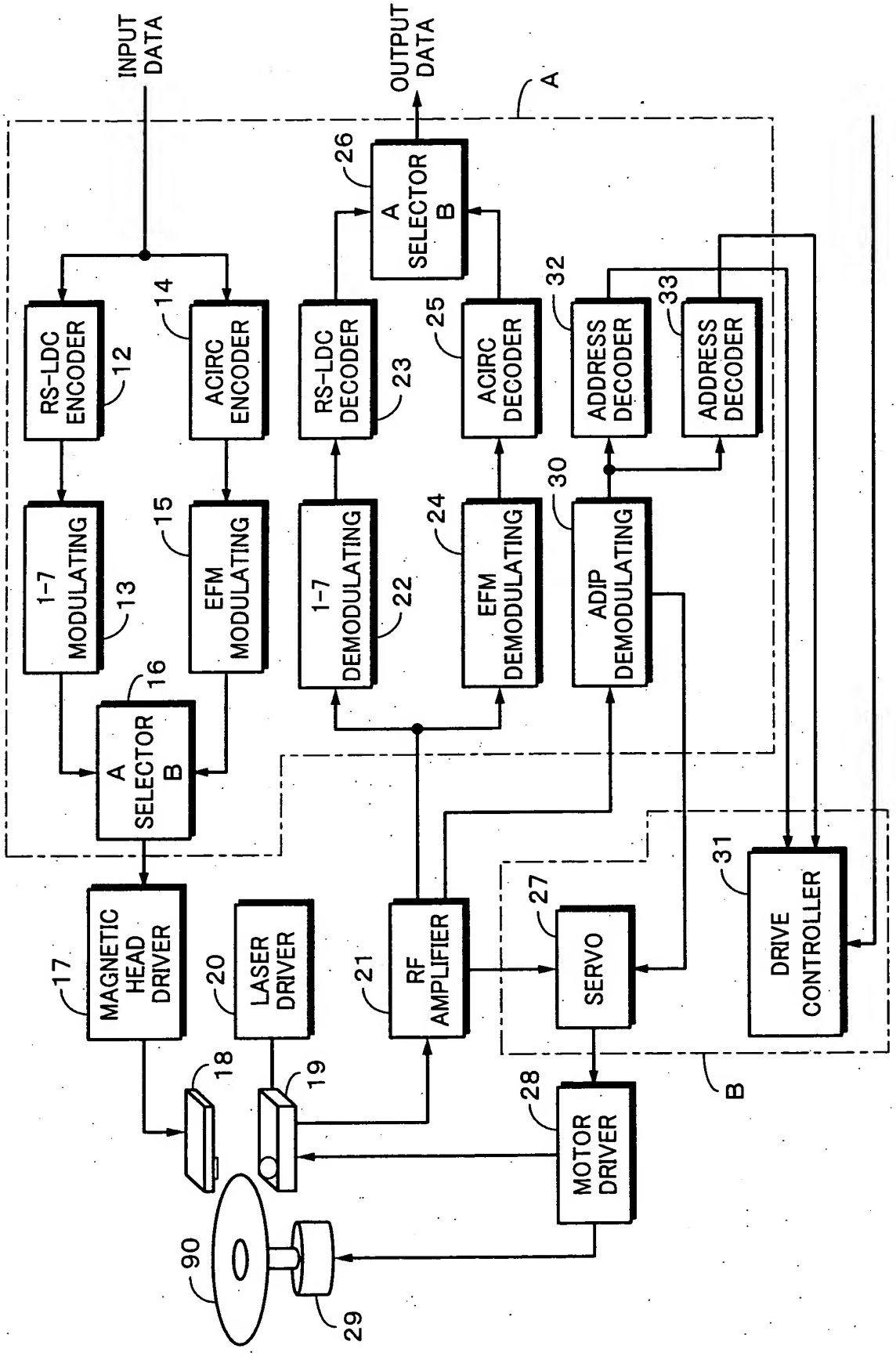

INPUT DATA
OUTPUT DATA
A
B
RS-LDC ENCODER
12
ACIRC ENCODER
14
1-7 MODULATING
13
EFM MODULATING
15
A SELECTOR B
16
MAGNETIC HEAD DRIVER
17
LASER DRIVER
20
RF AMPLIFIER
21
RS-LDC DECODER
23
1-7 DEMODULATING
22
EFM DEMODULATING
24
ACIRC DECODER
25
A SELECTOR B
26
SERVO
27
MOTOR DRIVER
28
ADIP DEMODULATING
30
ADDRESS DECODER
32
ADDRESS DECODER
33
DRIVE CONTROLLER
31
18
19
90
29

Fig. 19

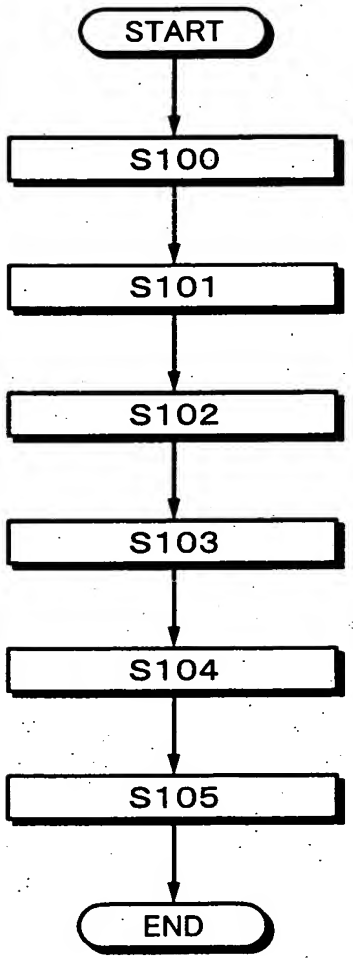


Fig. 20

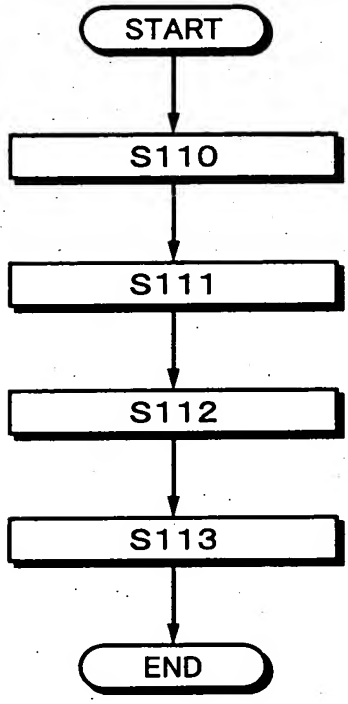


Fig. 21

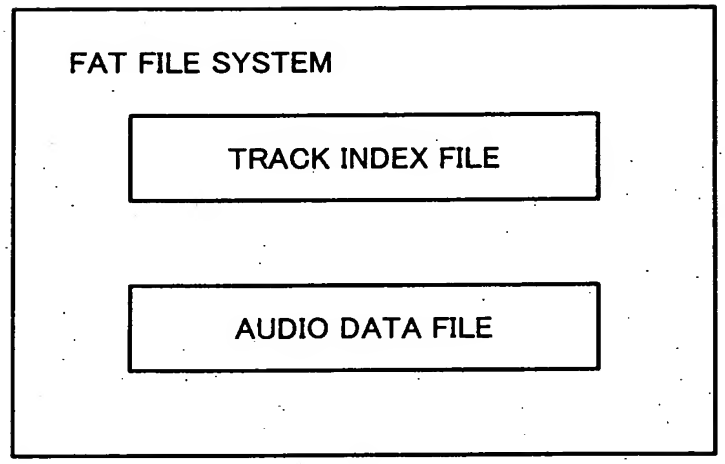


Fig. 22

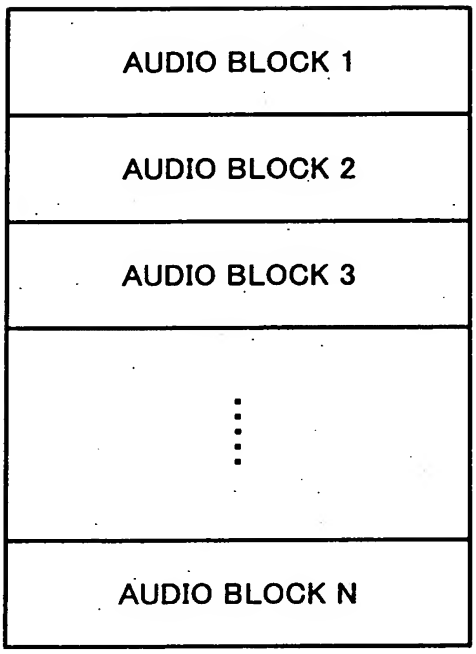


Fig. 23

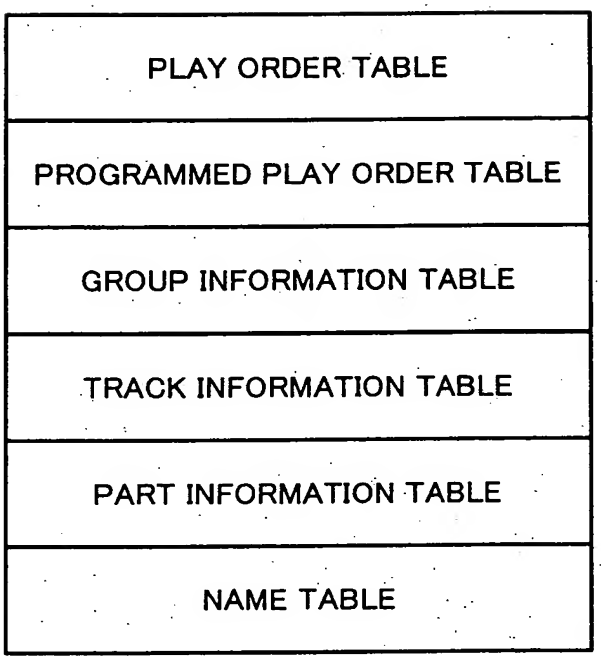

PLAY ORDER TABLE
PROGRAMMED PLAY ORDER TABLE
GROUP INFORMATION TABLE
TRACK INFORMATION TABLE
PART INFORMATION TABLE
NAME TABLE

Fig. 24

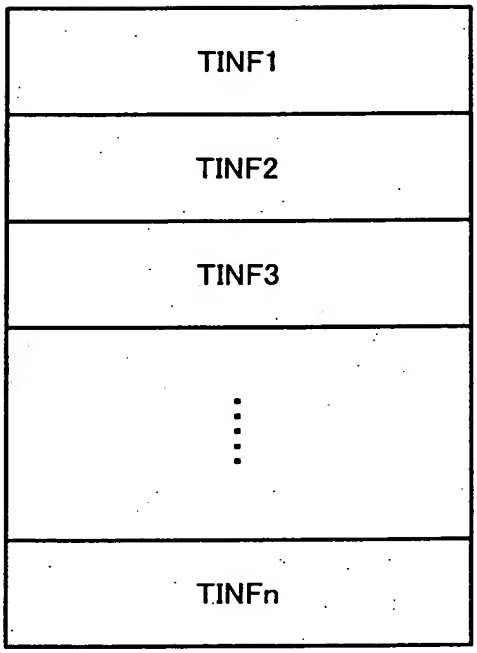


Fig. 25

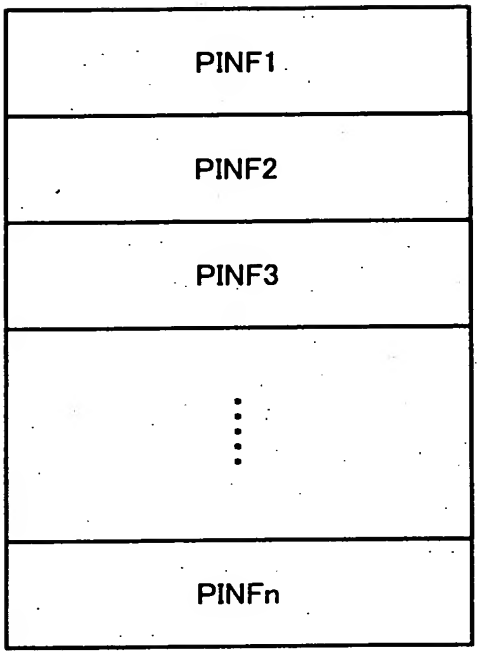


Fig. 26A

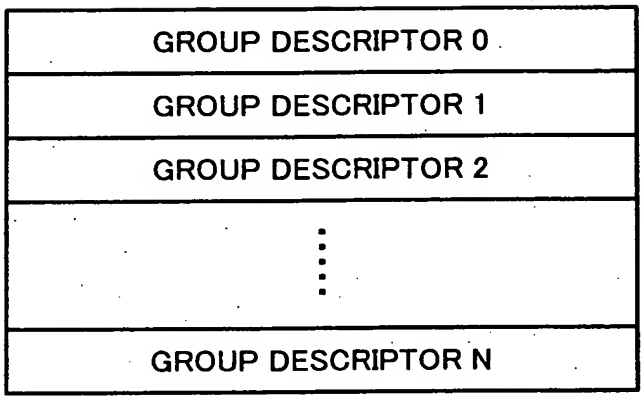


Fig. 26B

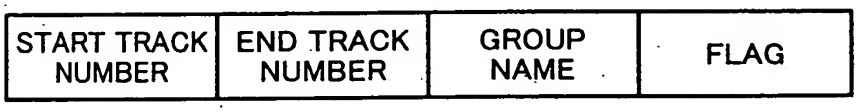


Fig. 27A

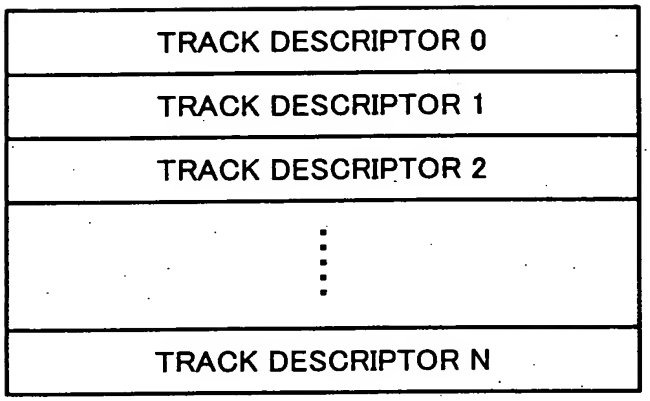


Fig. 27B

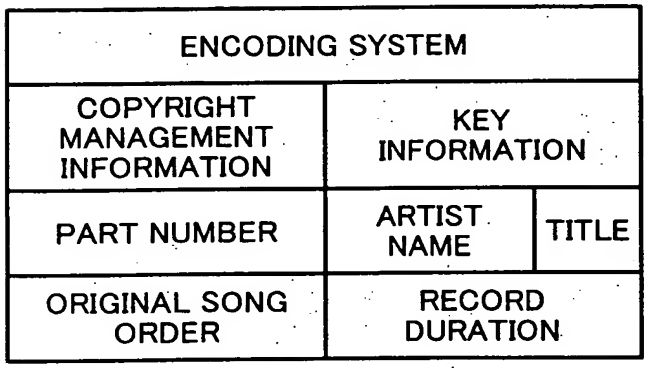


Fig. 28A

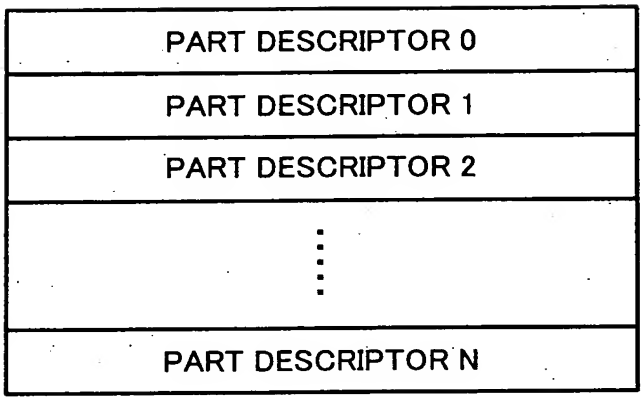


Fig. 28B

Fig. 29A

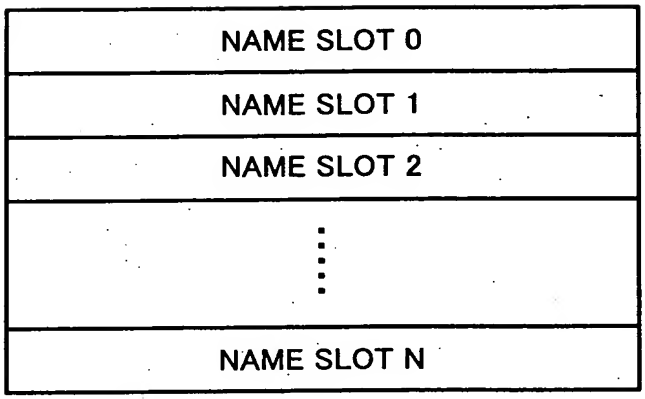


Fig. 29B

Fig. 30

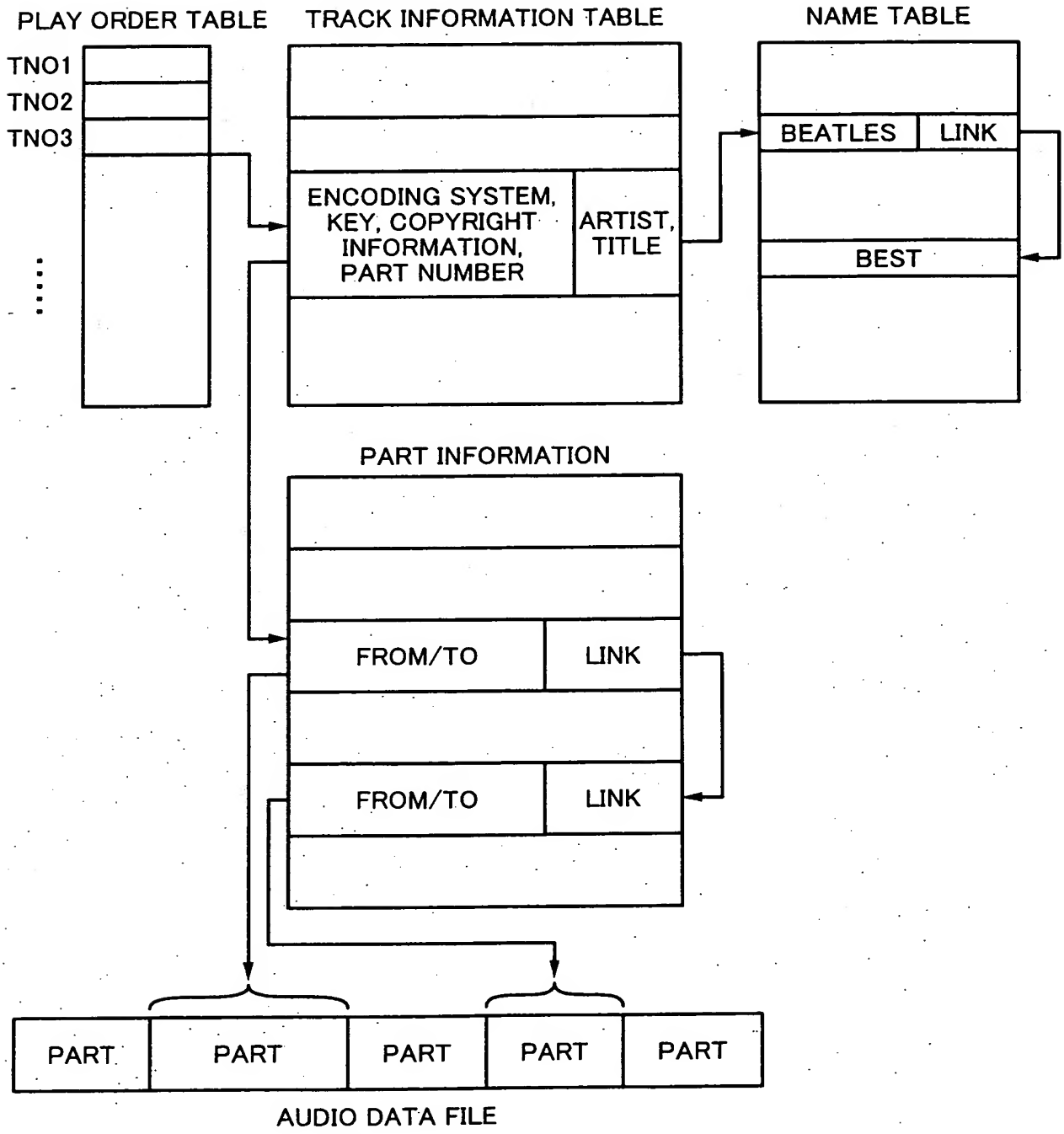
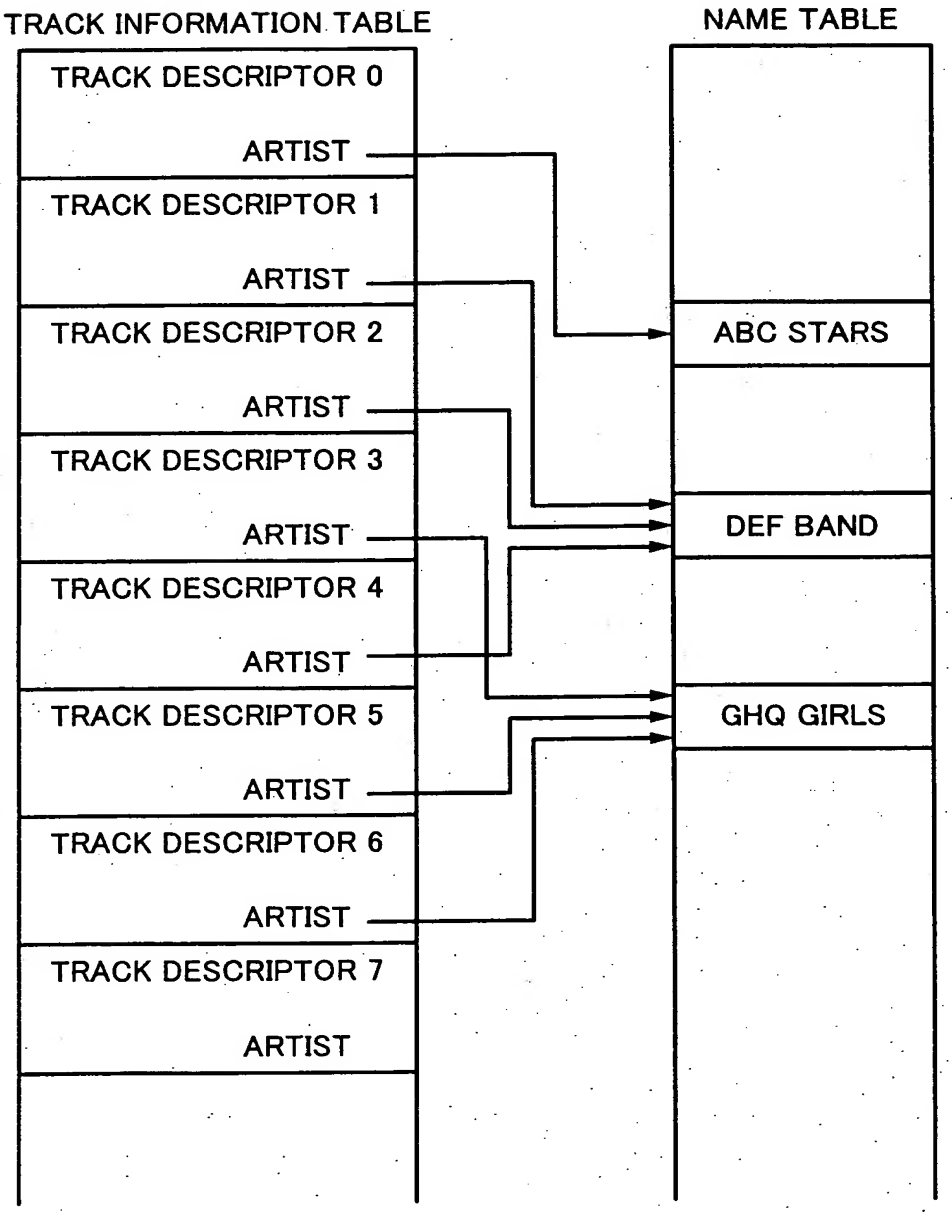

PLAY ORDER TABLE
TRACK INFORMATION TABLE
NAME TABLE
TNO1
TNO2
TNO3
ENCODING SYSTEM, KEY, COPYRIGHT INFORMATION, PART NUMBER
ARTIST, TITLE
BEATLES
LINK
BEST
PART INFORMATION
FROM/TO
LINK
FROM/TO
LINK
PART
PART
PART
PART
PART
AUDIO DATA FILE

Fig. 31


TRACK INFORMATION TABLE
NAME TABLE
TRACK DESCRIPTOR 0
ARTIST
TRACK DESCRIPTOR 1
ARTIST
TRACK DESCRIPTOR 2
ARTIST
TRACK DESCRIPTOR 3
ARTIST
TRACK DESCRIPTOR 4
ARTIST
TRACK DESCRIPTOR 5
ARTIST
TRACK DESCRIPTOR 6
ARTIST
TRACK DESCRIPTOR 7
ARTIST
ABC STARS
DEF BAND
GHQ GIRLS

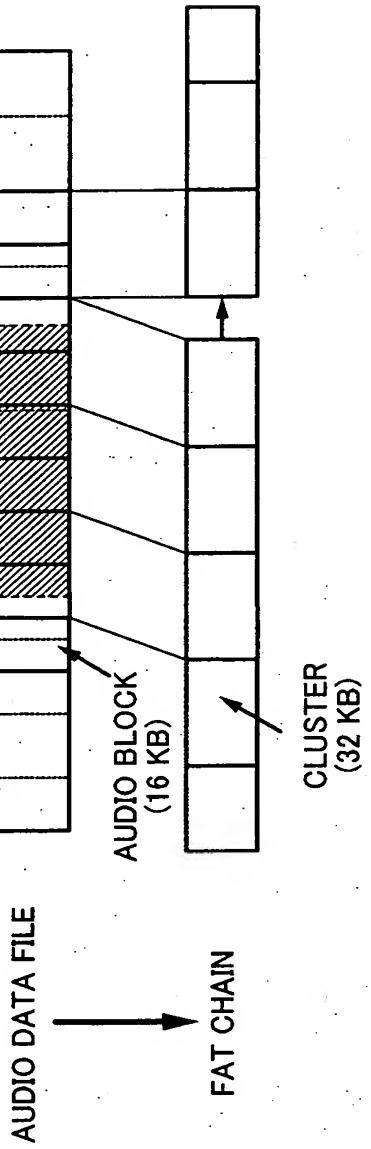


Fig. 32A

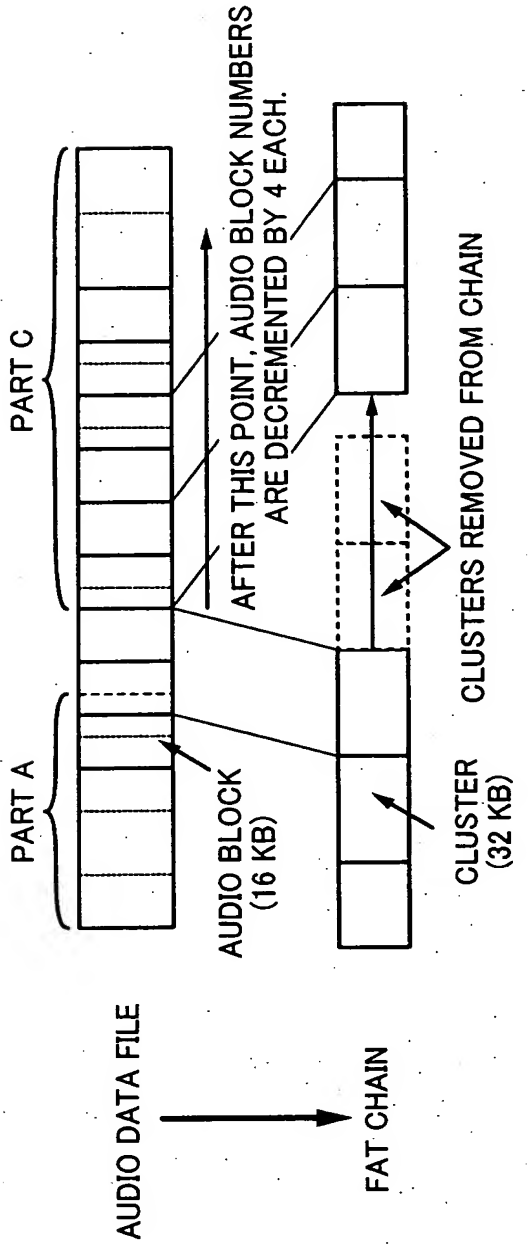


Fig. 32B

Fig. 33

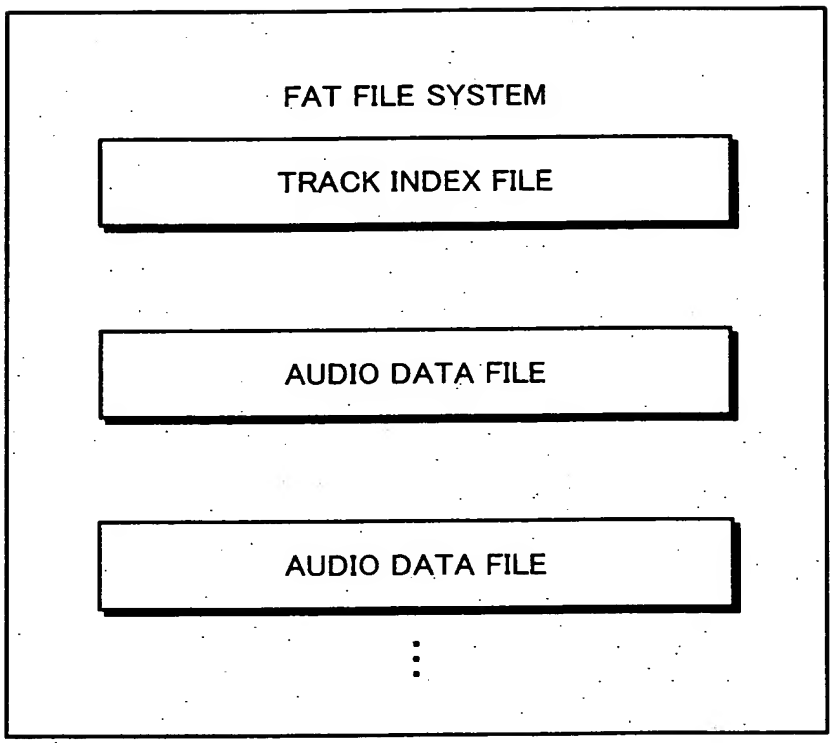

FAT FILE SYSTEM
TRACK INDEX FILE
AUDIO DATA FILE
AUDIO DATA FILE

Fig. 34

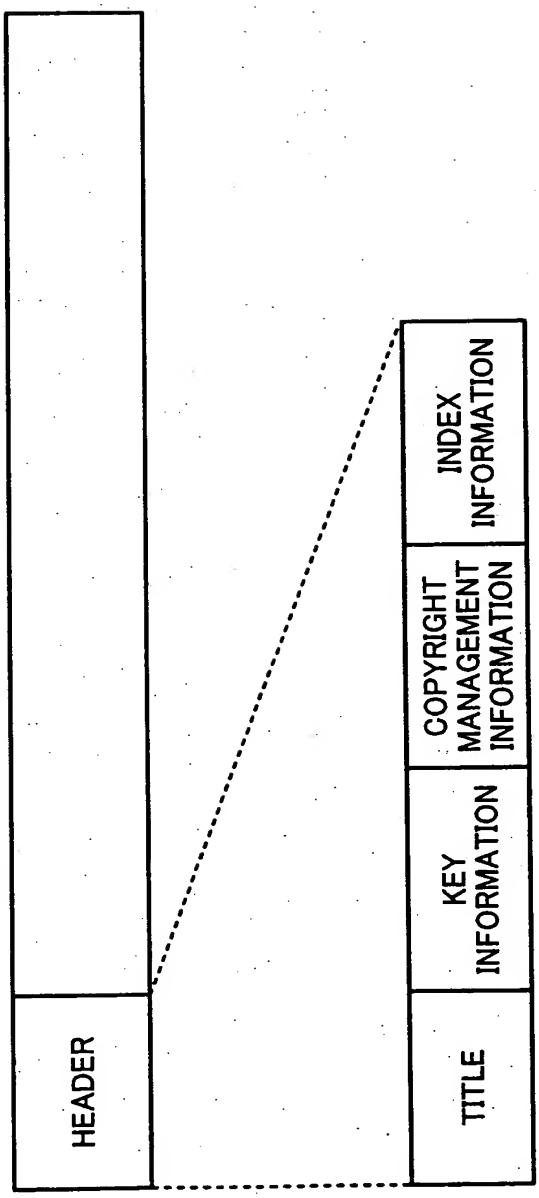
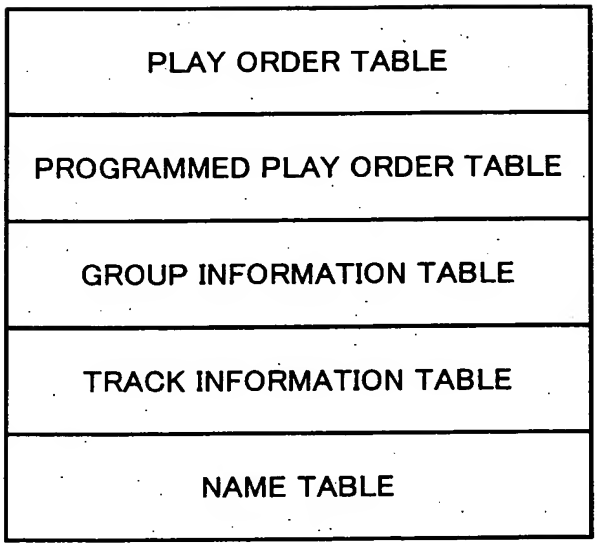
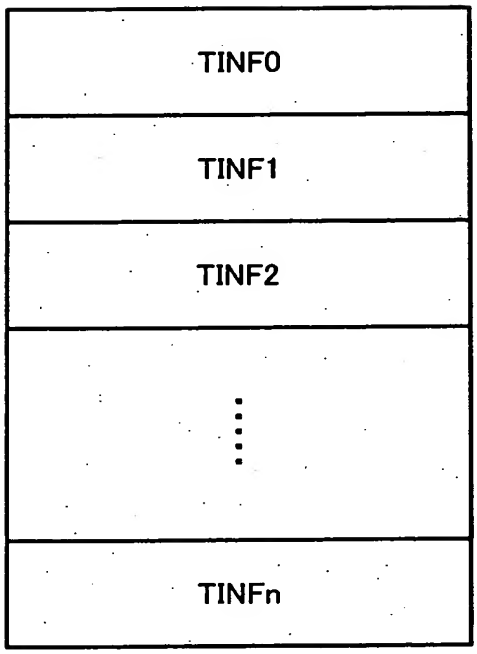

HEADER
TITLE
KEY INFORMATION
COPYRIGHT MANAGEMENT INFORMATION
INDEX INFORMATION

Fig. 35


PLAY ORDER TABLE
PROGRAMMED PLAY ORDER TABLE
GROUP INFORMATION TABLE
TRACK INFORMATION TABLE
NAME TABLE

10/520253

Fig. 36



2245209253

Fig. 37

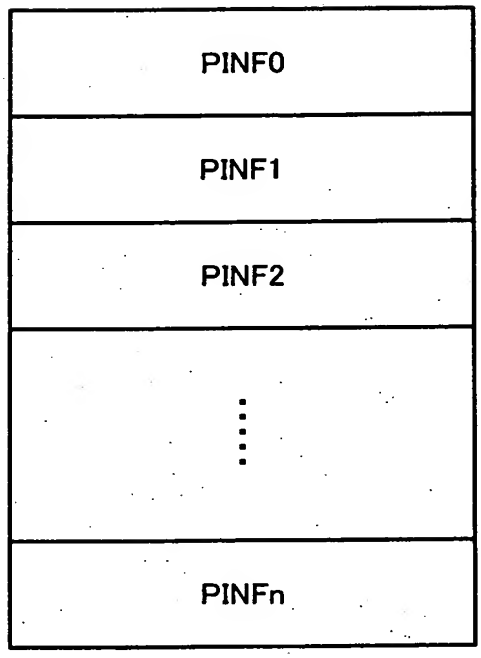


Fig. 38A

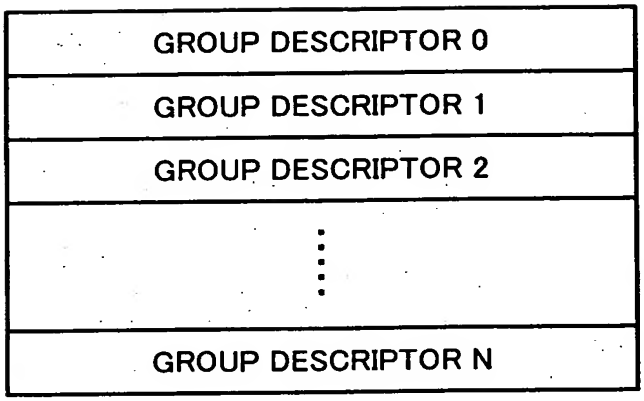


Fig. 38B

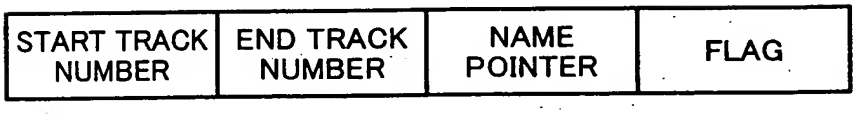


Fig. 39A

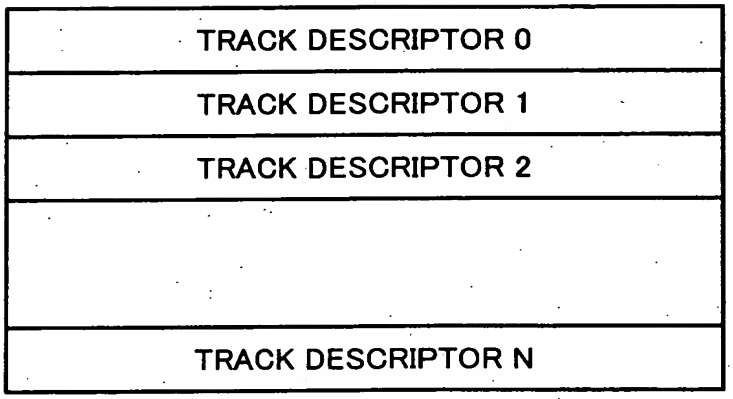


Fig. 39B

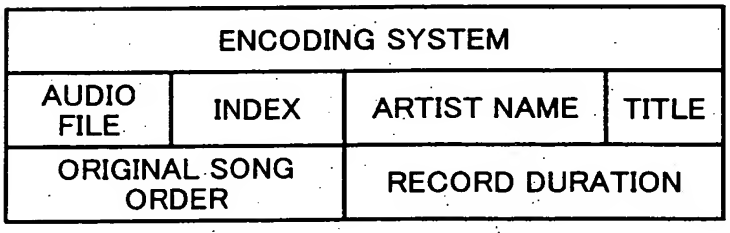


Fig. 40A

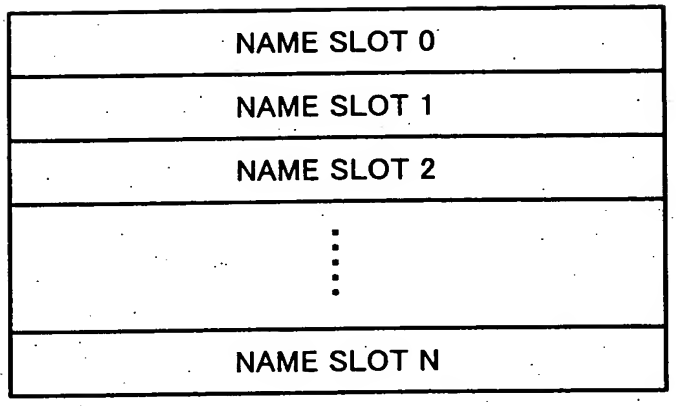


Fig. 40B

Fig. 41

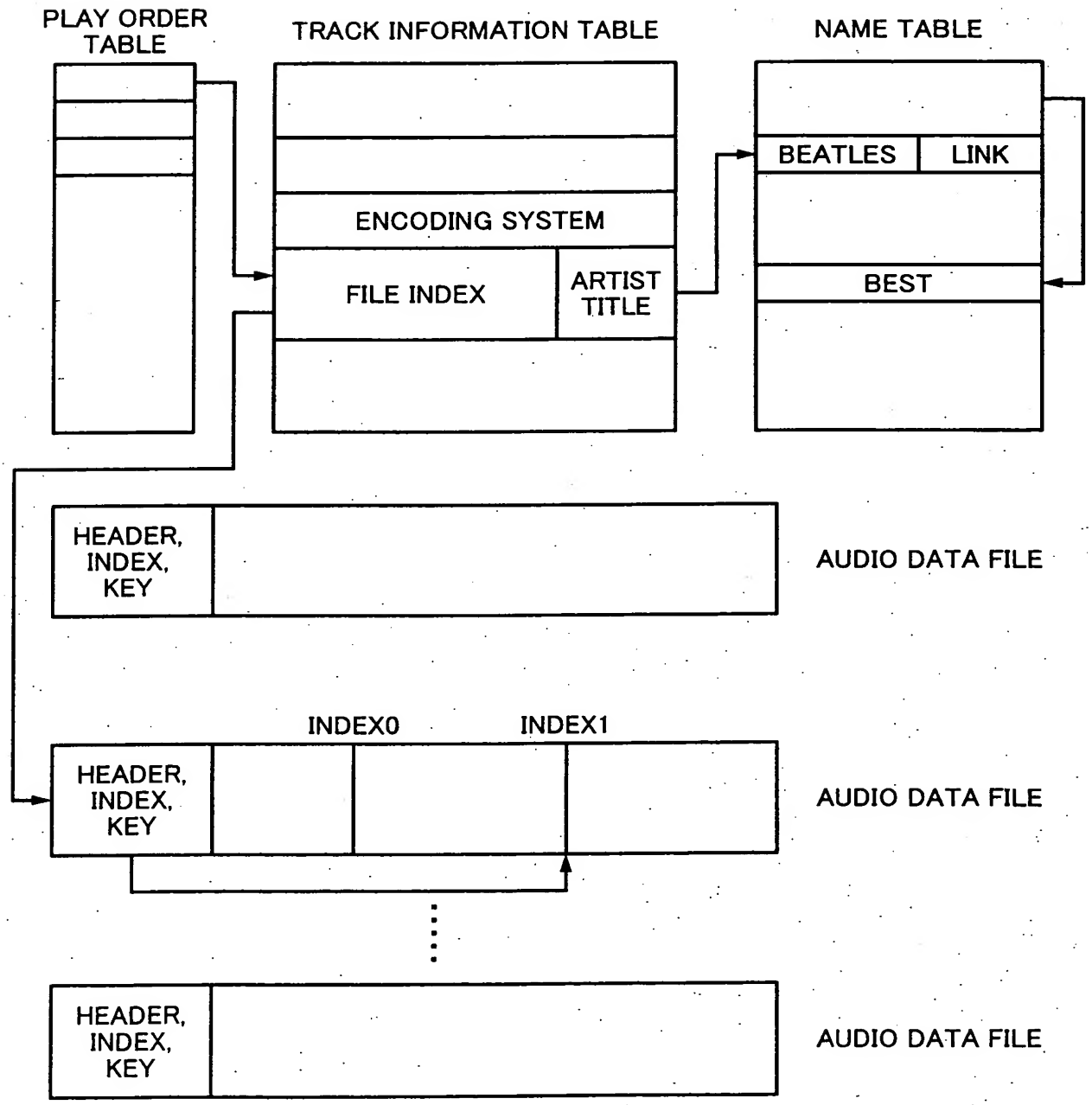

PLAY ORDER TABLE
TRACK INFORMATION TABLE
NAME TABLE
BEATLES
LINK
ENCODING SYSTEM
FILE INDEX
ARTIST TITLE
BEST
HEADER, INDEX, KEY
AUDIO DATA FILE
INDEX0
INDEX1
HEADER, INDEX, KEY
AUDIO DATA FILE
HEADER, INDEX, KEY
AUDIO DATA FILE

Fig. 42

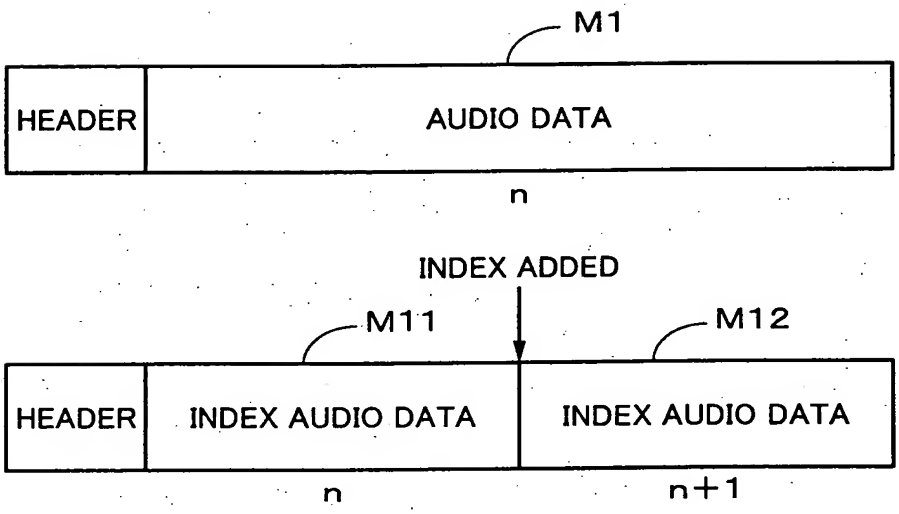

M1
HEADER
AUDIO DATA
n
INDEX ADDED
M11
M12
HEADER
INDEX AUDIO DATA
INDEX AUDIO DATA
n
n+1

Fig. 43

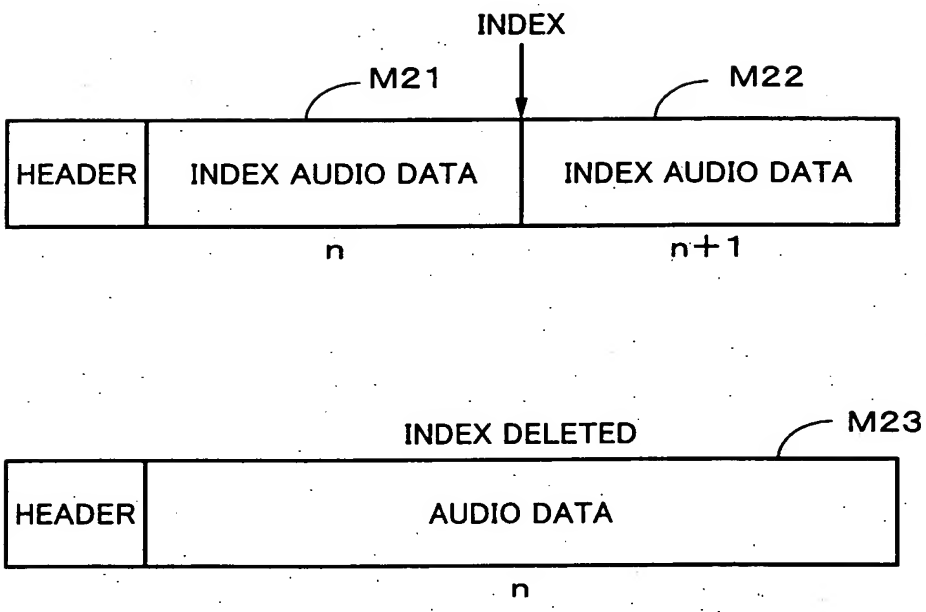

INDEX
M21
M22
HEADER
INDEX AUDIO DATA
INDEX AUDIO DATA
n
n+1
INDEX DELETED
M23
HEADER
AUDIO DATA
n

Fig. 44

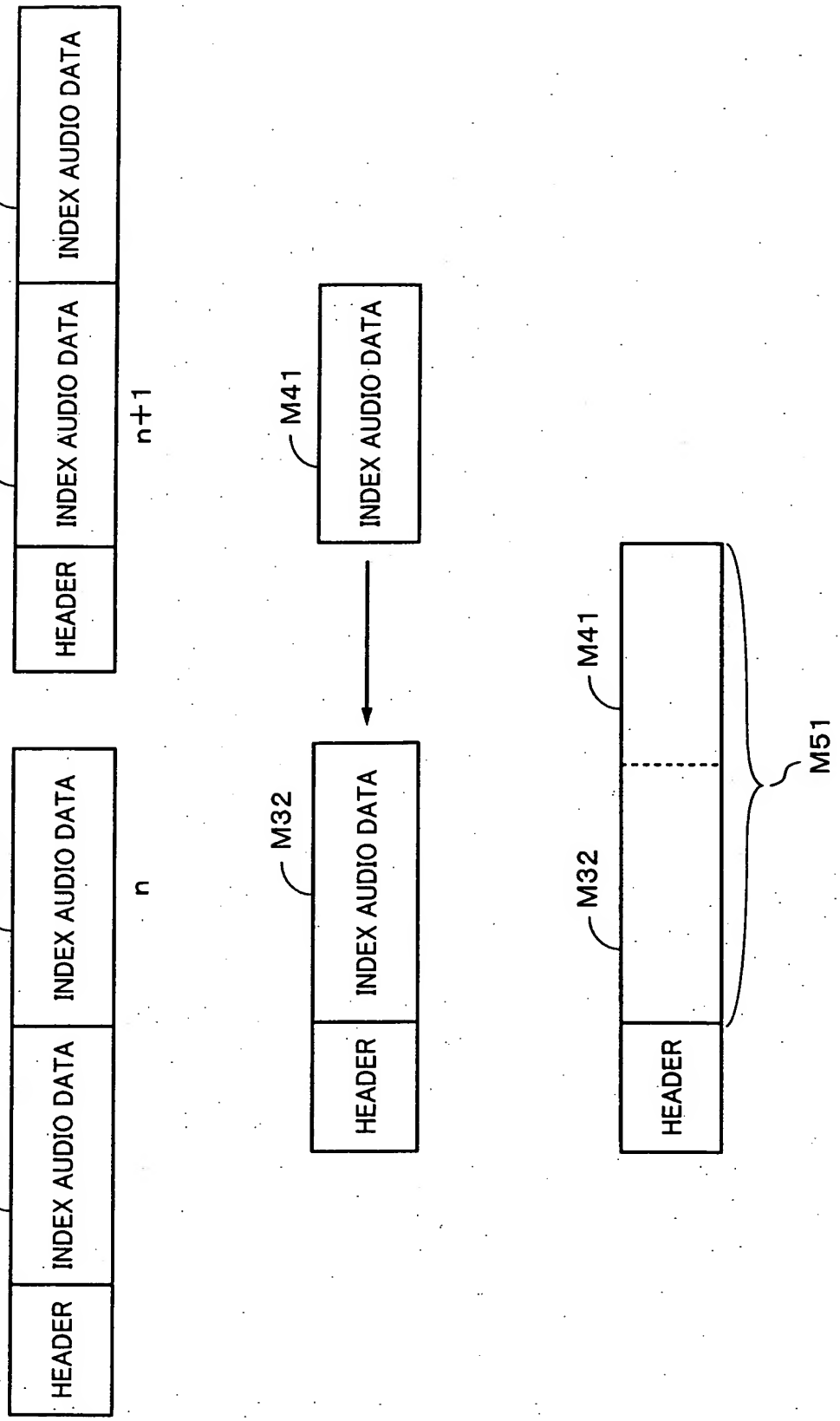

M42
INDEX AUDIO DATA
M41
INDEX AUDIO DATA
HEADER
n+1
M32
INDEX AUDIO DATA
M31
INDEX AUDIO DATA
HEADER
n
M41
INDEX AUDIO DATA
M32
INDEX AUDIO DATA
HEADER
M41
M32
HEADER
M51

Fig. 45A

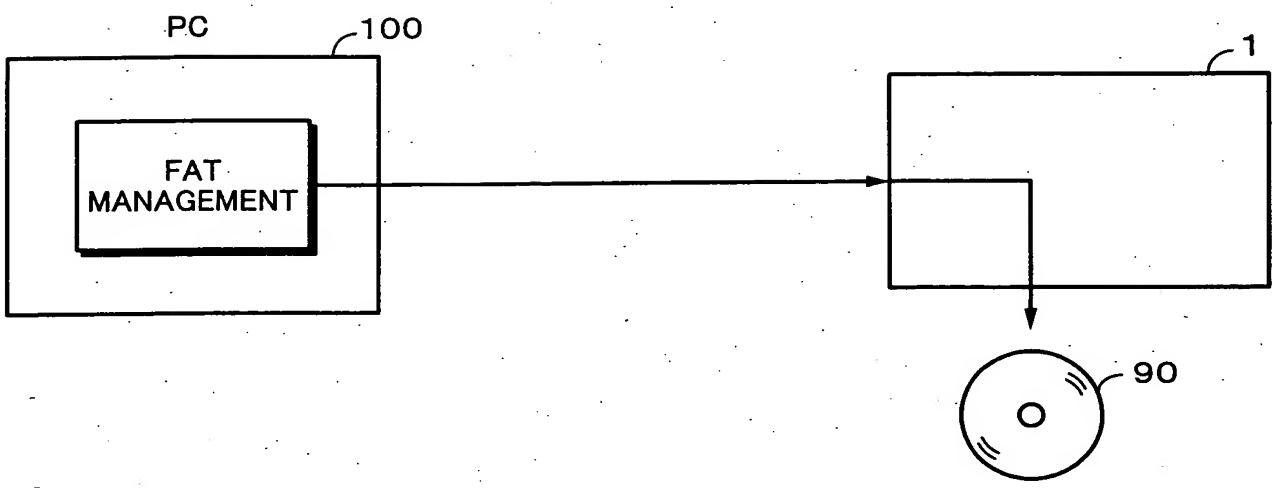


Fig. 45B

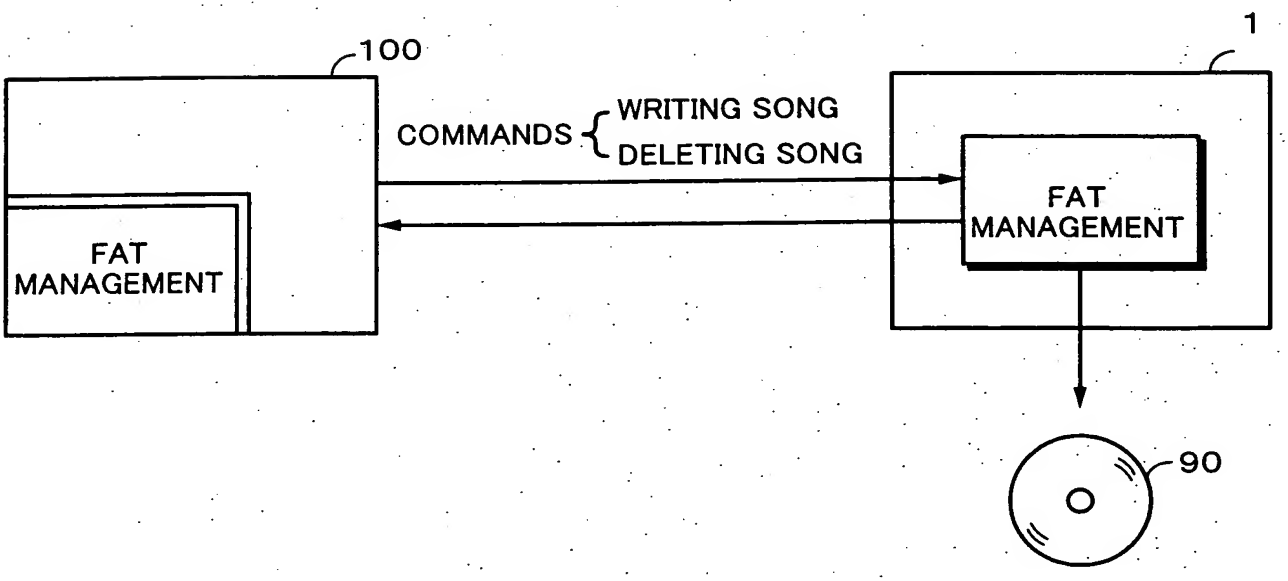


Fig. 46

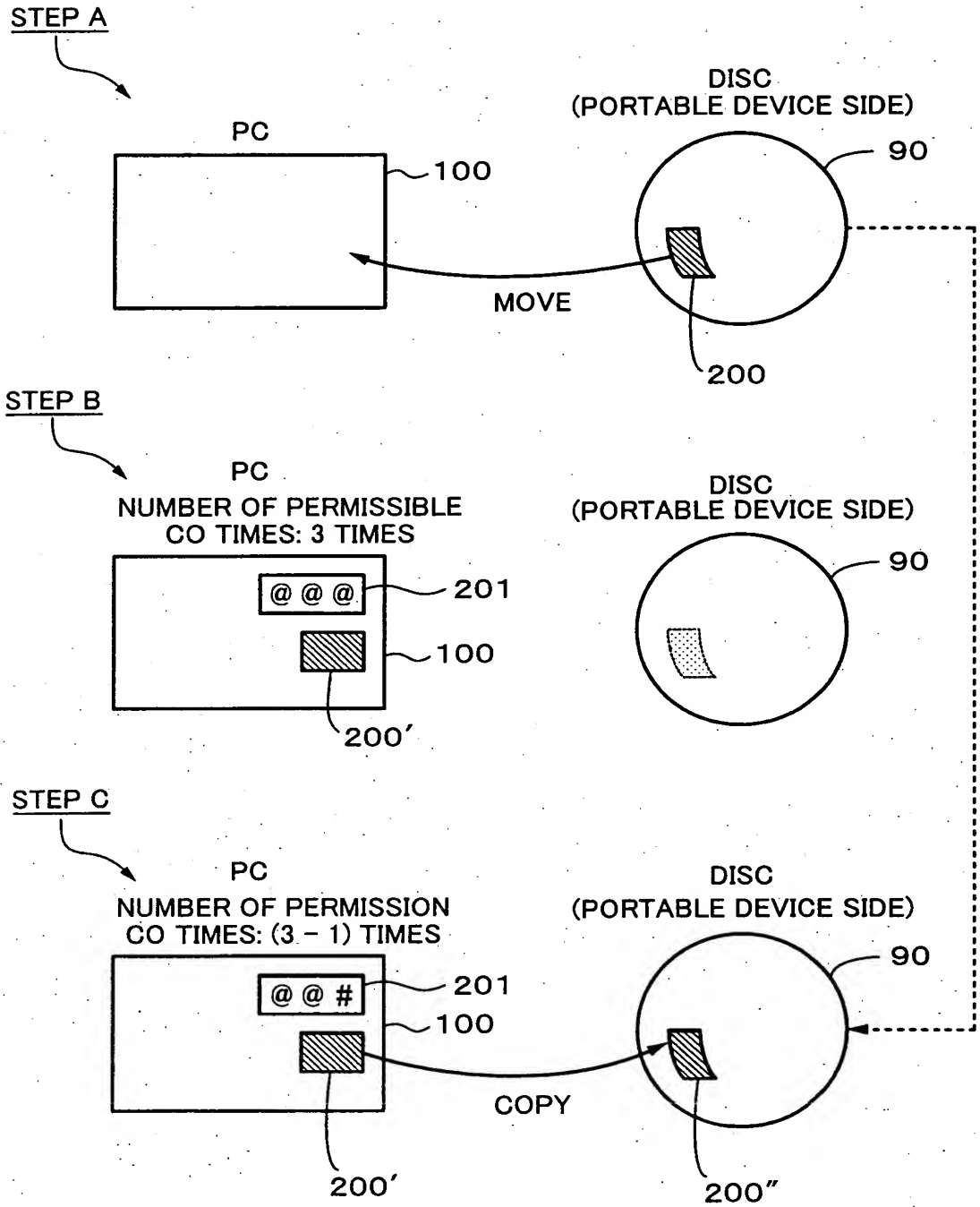

STEP A
PC
100
DISC
(PORTABLE DEVICE SIDE)
90
MOVE
200
STEP B
PC
NUMBER OF PERMISSIBLE
CO TIMES: 3 TIMES
@ @ @
201
100
200′
DISC
(PORTABLE DEVICE SIDE)
90
STEP C
PC
NUMBER OF PERMISSION
CO TIMES: (3 − 1) TIMES
@ @ #
201
100
COPY
200′
DISC
(PORTABLE DEVICE SIDE)
90
200″

Fig. 47

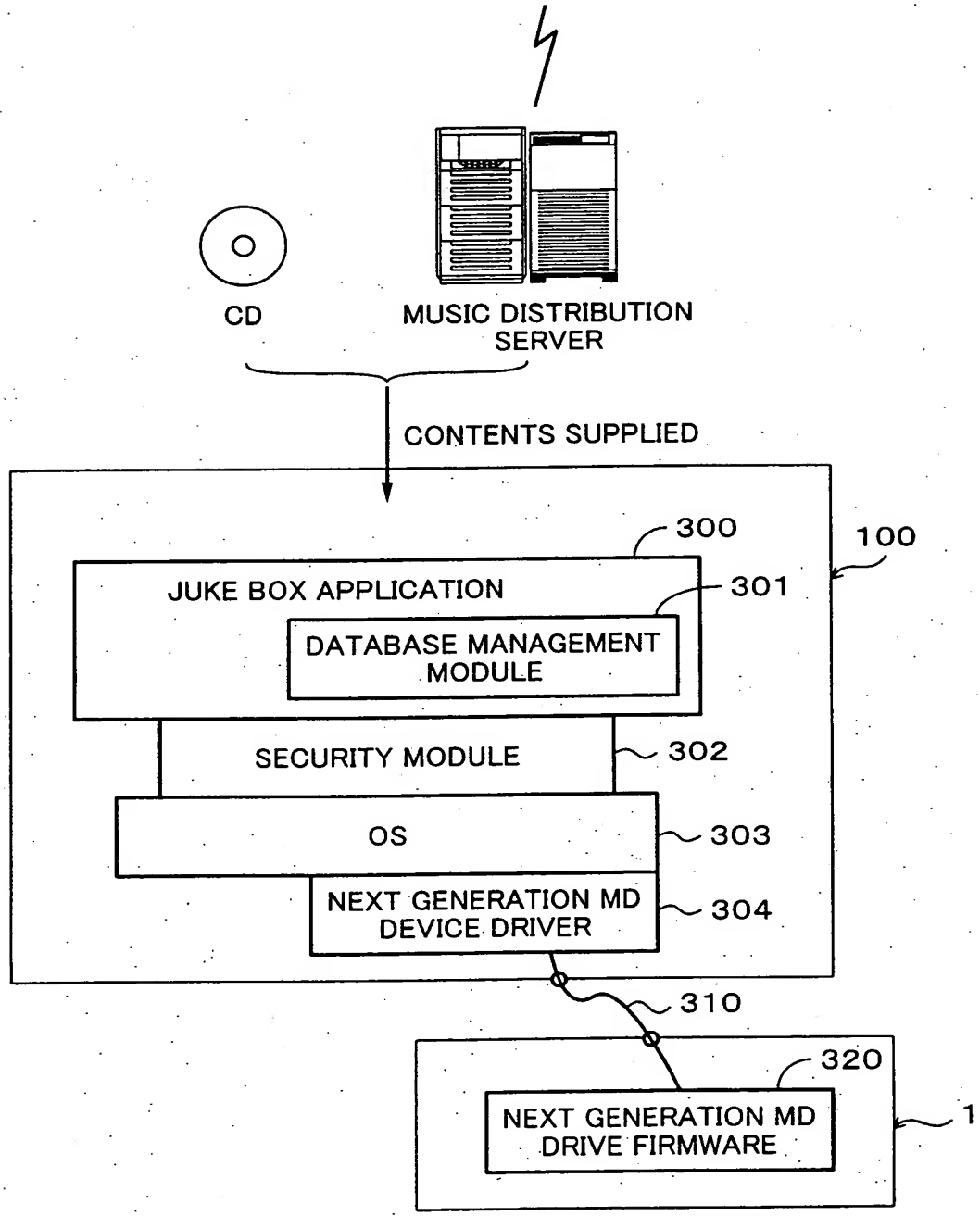

CD
MUSIC DISTRIBUTION SERVER
CONTENTS SUPPLIED
300
100
JUKE BOX APPLICATION
301
DATABASE MANAGEMENT MODULE
SECURITY MODULE
302
OS
303
NEXT GENERATION MD DEVICE DRIVER
304
310
320
NEXT GENERATION MD DRIVE FIRMWARE
1

Fig. 48A

DISC ID	GROUP NAME	DISC CAPACITY	RESERVATION INFORMATION
AAAAA	EEEEE	aaaaa	IIIII
BBBBB	FFFFF	bbbbb	JJJJJ
CCCCC	GGGGG	ccccc	KKKKK
DDDDD	HHHHH	ddddd	LLLLL

Fig. 48B

CONTENT ID	DISC ID	SIZE	NUMBER OF PERMISSIBLE CO TIMES
NNNNN	AAAAA	eeeee	3
OOOOO	AAAAA	fffff	2
PPPPP	BBBBB	ggggg	2
QQQQQ	CCCCC	hhhhh	3
RRRRR	CCCCC	iiiii	1
SSSSS	DDDDD	jjjjj	0
TTTTT	BBBBB	kkkkk	2

Fig. 49

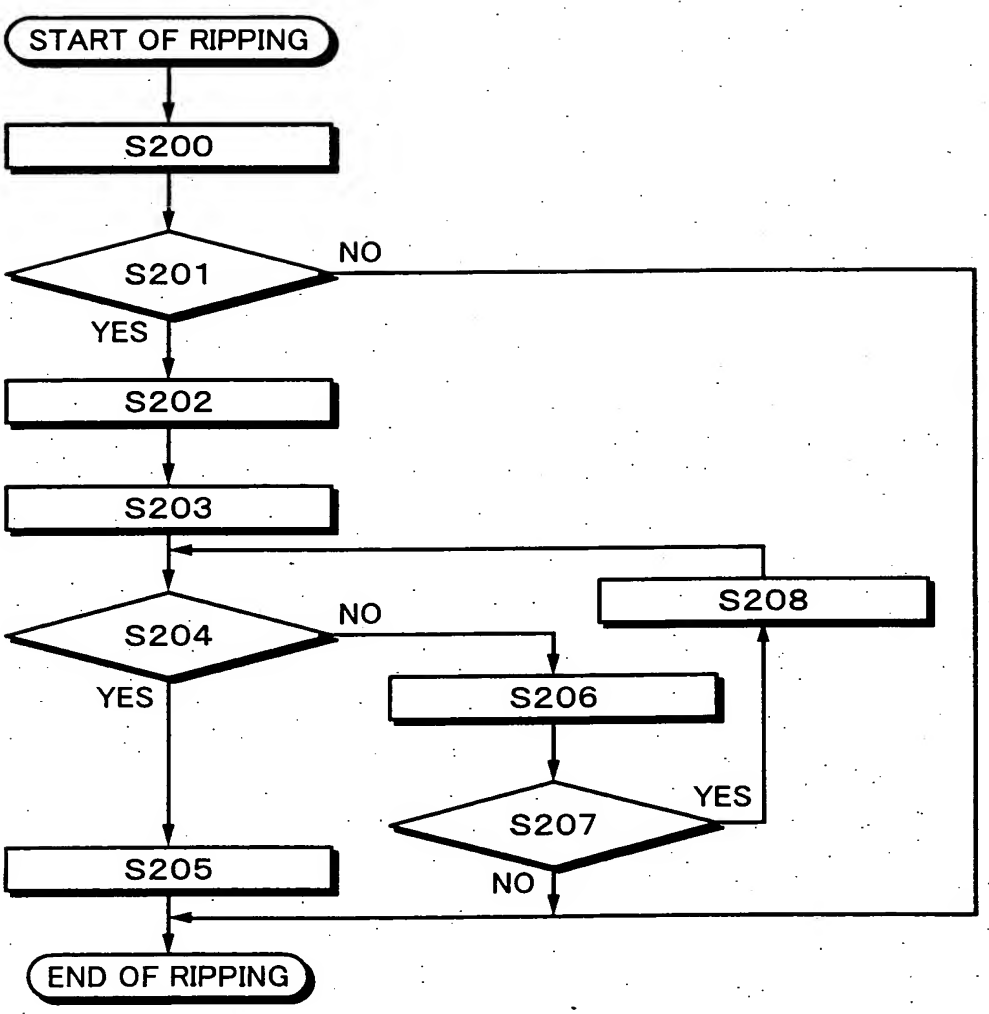
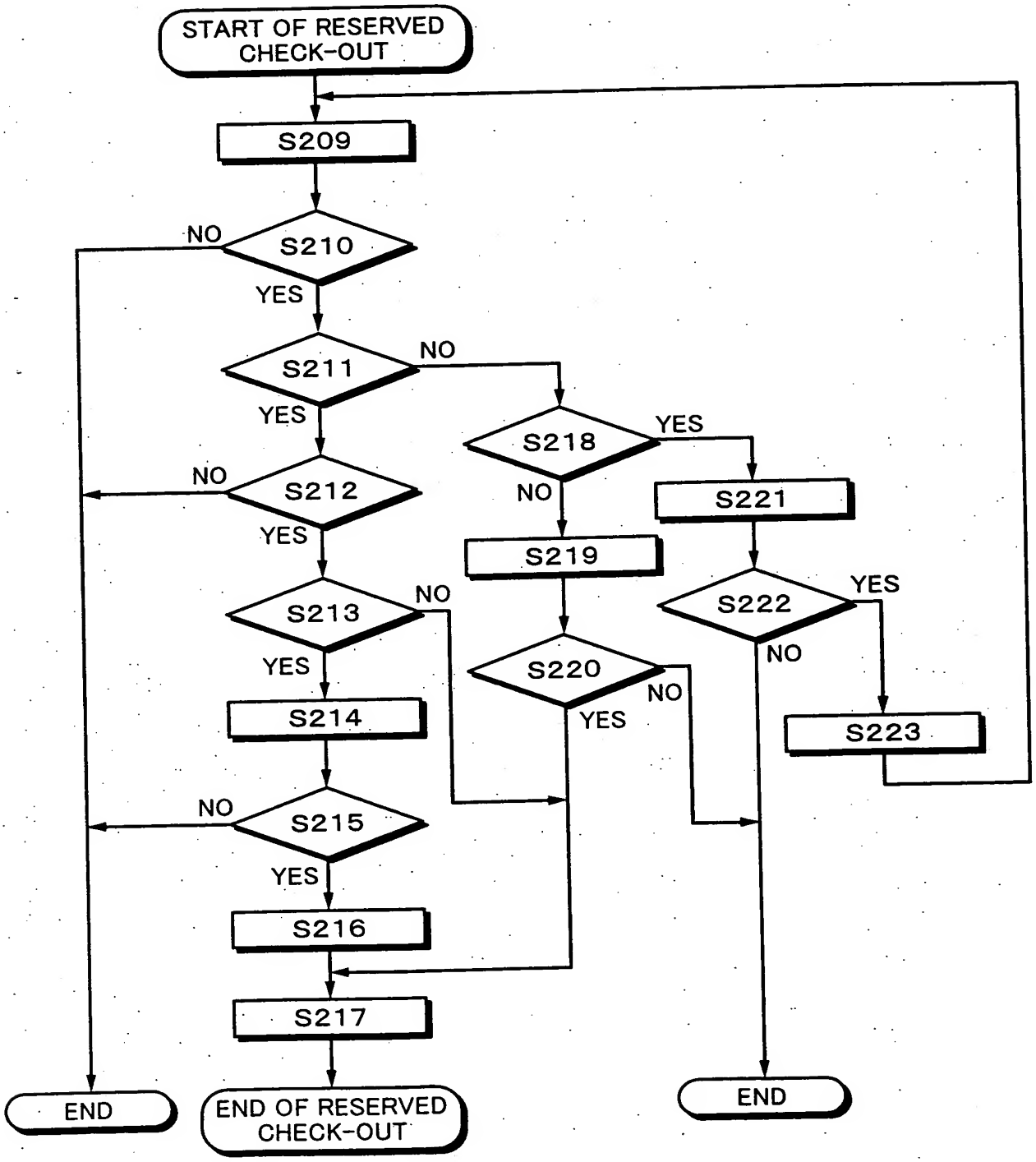

START OF RIPPING
S200
S201
NO
YES
S202
S203
S204
NO
YES
S206
S208
S207
YES
NO
S205
END OF RIPPING

Fig. 50


START OF RESERVED CHECK-OUT
S209
S210
NO
YES
S211
NO
YES
S212
NO
YES
S213
NO
YES
S214
S215
NO
YES
S216
S217
END
END OF RESERVED CHECK-OUT
S218
YES
NO
S219
S220
NO
YES
S221
S222
YES
NO
S223
END

DESCRIPTION OF REFERENCE NUMERALS

1	DISC DRIVE DEVICE
2	MEDIUM DRIVE PORTION
3	MEMORY TRANSFER CONTROLLER
4	CLUSTER BUFFER MEMORY
5	AUXILIARY MEMORY
6, 8	USB INTERFACE
7	USB HUB
10	AUDIO PROCESSING PORTION
12	RS-LDC ENCODER
13	1-7 pp MODULATING PORTION
14	ACIRC ENCODER
15	EFM MODULATING PORTION
16	SELECTOR
17	MAGNETIC HEAD DRIVER
18	MAGNETIC HEAD
19	OPTICAL HEAD
22	1-7 DEMODULATING PORTION
23	RS-LDC DECODER
24	EFM DEMODULATING PORTION
25	ACIRC DECODER
26	SELECTOR
30	ADIP DEMODULATING PORTION
32, 33	ADDRESS DECODER
50	SWITCH

90	DISC
100	PERSONAL COMPUTER
300	JUKE BOX APPLICATION
301	DATABASE MANAGEMENT MODULE
302	SECURITY MODULE
S100	CHECK UID.
S101	RECORD UTOC.
S102	RECORD ALERT TRACK.
S103	RECORD DDT.
S104	RECORD UNIQUE ID.
S105	RECORD FAT AND SO FORTH.
S110	CHECK UID.
S112	UNIQUE ID
S111	RECORD DDT.
S113	RECORD FAT AND SO FORTH.
S200	ASK USER WHETHER OR NOT TO RESERVE CHECK-OUT.
S201	WILL USER RESERVE CHECK-OUT ?
S202	ASK DISC ID DATABASE.
S203	DESIGNATE DISC FOR WHICH CHECK-OUT IS RESERVED.
S204	IS REMAINING CAPACITY SUFFICIENT ?
S205	RESERVE CHECK-OUT.
S206	ASK USER WHETHER OR NOT TO RESERVE CHECK-IN.
S207	WILL USER RESERVE CHECK-IN ?
S208	RESERVE CHECK-IN.
S209	ASK WHETHER OR NOT TO PERFORM CHECK-OUT.

S210 WILL USER PERFORM CHECK-OUT ?

S211 HAS DISC ID OF DISK LOADED INTO FD BEEN REGISTERED IN DISC ID DATABASE ?

S212 DOES ID OF DISC LOADED IN PD MATCH ID OF RESERVED DISC ?

S213 HAS CHECK-IN BEEN RESERVED ?

S214 ASK WHETHER OR NOT TO PERFORM CHECK-IN.

S215 WILL USER PERFORM CHECK-IN ?

S216 PERFORM CHECK-IN.

S217 PERFORM CHECK-OUT.

S218 DOES DISC LOADED IN PD CONTAIN SONG ?

S219 DETERMINE THAT DISC IS BLANK DISC AND REGISTER INFORMATION THEREABOUT TO DATABASE.

S220 HAS CHECK-OUT FOR NEW DISC BEEN RESERVED ?

S221 DETERMINE THAT DISC IS NON-REGISTERED DISC AND ASK WHETHER OR NOT TO REGISTER DISC.

S222 WILL USER REGISTER DISC ID ?

S223 REGISTER NON-REGISTERED DISC.